Service Manual

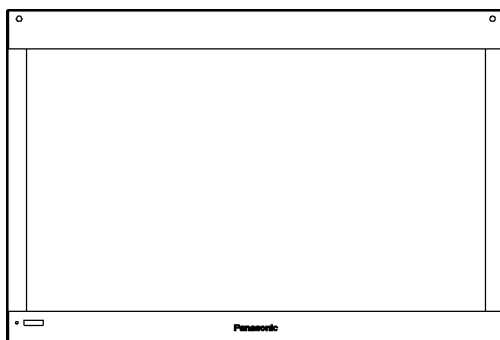**Touch Panel**

Model No. TY-TP42P10S

Model No. TY-TP50P10S

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

■ IMPORTANT SAFETY NOTICE ■

There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Diagrams, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire or other hazards. Do not modify the original design without permission of manufacturer.

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1 Warning

1.1. Prevention of Electrostatic Discharge (ESD) to Electrostatically Sensitive (ES) Devices

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   Caution
   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise ham less motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

IMPORTANT SAFETY NOTICE

There are special components used in this equipment which are important for safety.
These parts are marked by ⚠ in the schematic diagrams, Exploded Views and replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

1.2. About lead free solder (PbF)

Note: Lead is listed as (Pb) in the periodic table of elements.
In the information below, Pb will refer to Lead solder, and PbF will refer to Lead Free Solder.
The Lead Free Solder used in our manufacturing process and discussed below is (Sn+Ag+Cu).
That is Tin (Sn), Silver (Ag) and Copper (Cu) although other types are available.

This model uses Pb Free solder in it's manufacture due to environmental conservation issues. For service and repair work, we'd suggest the use of Pb free solder as well, although Pb solder may be used.

PCBs manufactured using lead free solder will have the PbF within a leaf Symbol **PbF** stamped on the back of PCB.
Caution
 • Pb free solder has a higher melting point than standard solder. Typically the melting point is 50 ~ 70 °F (30~40 °C) higher. Please use a high temperature soldering iron and set it to 700 ± 20 °F (370 ± 10 °C).
 • Pb free solder will tend to splash when heated too high (about 1100 °F or 600 °C).
   If you must use Pb solder, please completely remove all of the Pb free solder on the pins or solder area before applying Pb solder. If this is not practical, be sure to heat the Pb free solder until it melts, before applying Pb solder.
 • After applying PbF solder to double layered boards, please check the component side for excess solder which may flow onto the opposite side. (see figure below)
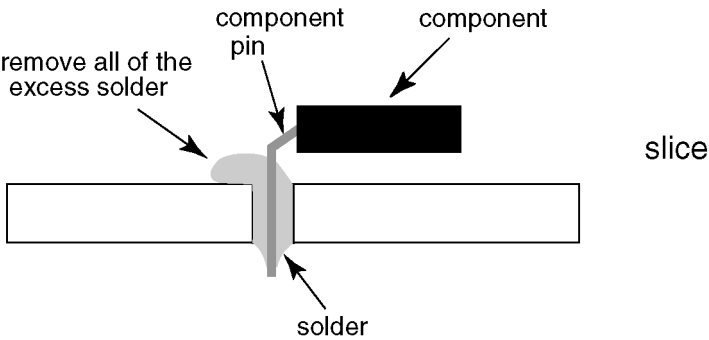
Suggested Pb free solder
   There are several kinds of Pb free solder available for purchase. This product uses Sn+Ag+Cu (tin, silver, copper) solder. However, Sn+Cu (tin, copper), Sn+Zn+Bi (tin, zinc, bismuth) solder can also be used.

$\frac{1}{64}$" x 0.22 lb.(0.3 mm x 100 g)	$\frac{1}{32}$" x 0.22 lb.(0.6 mm x 100 g)	$\frac{3}{64}$" x 0.22 lb.(1.0 mm x 100 g)

2 Specifications

Type	Touch Panel	
Power source		
Voltage	+5V DC ± 10%	
Electric current	Max. 450 mA	
Supply system	From USB bus	
Touch panel		
Detection system	Infrared retroreflective detection	
Panel window	$36^{15}/_{16}$" (938 mm) (W) $\times$ $21^{5}/_{64}$" (535 mm) (H) (TY-TP42P10S)	$44^{27}/_{64}$" (1,128 mm) (W) $\times$ $25^{33}/_{64}$" (648 mm) (H) (TY-TP50P10S)
Detection range	$36^{15}/_{64}$ " (920 mm) (W) $\times$ $20^{13}/_{32}$" (518 mm) (H) (TY-TP42P10S)	$43^{35}/_{64}$ " (1,106 mm) (W) $\times$ $24^{1}/_{2}$" (622 mm) (H) (TY-TP50P10S)
Effective detection range	Same as above	
Resolution	Approx. 32,000 $\times$ 18,000 points *1	
Output system	Coordinate output	
Optic element pitch	Infrared LED x 4, CMOS image sensor $\times$ 2	
Minimum detection size	$^{9}/_{32}$" (7 mm) (TY-TP42P10S)	$^{21}/_{64}$" (8 mm) (TY-TP50P10S)
Response rate	100 points / sec	
Interface		
	USB 2.0 full speed device Signals: +DATA, -DATA, VCC, GND Connector: Type B	
Temperature	When operating: 0 ~ 70°C (0 ~ 40°C) *2	
Humidity	When operating: 20 ~ 80% (No dewing) *2	
Resistance to external light	Lateral light 2,000 lx + 20% (20° angle of incidence) Frontal light 10,000 lx + 20% (90° angle of incidence)	
External dimensions	$40^{1}/_{32}$" (1,016.4 mm) (W) $\times$ 27" (686 mm) (H) $\times$ $1^{57}/_{64}$" (47.9 mm) (D) (TY-TP42P10S)	$47^{1}/_{2}$" (1,206.4 mm) (W) $\times$ $31^{29}/_{64}$" (798.6 mm) (H) $\times$ $1^{57}/_{64}$" (47.9 mm) (D) (TY-TP50P10S)
Mass	Approx. 9.04 lb. (4.1 kg) (TY-TP42P10S)	Approx. 10.14 lb. (4.6 kg) (TY-TP50P10S)
Escutcheon material	Aluminum	

*1 Resolution obtained by using a dedicated Driver software
*2 When the panel is attached to a Plasma display produced by Matsushita Electric Industrial Co., Ltd.

3 General/Introduction

3.1. PCB Stracture

Sensor R board unit   Main board unit   Sensor L board unit

(Back Side View)
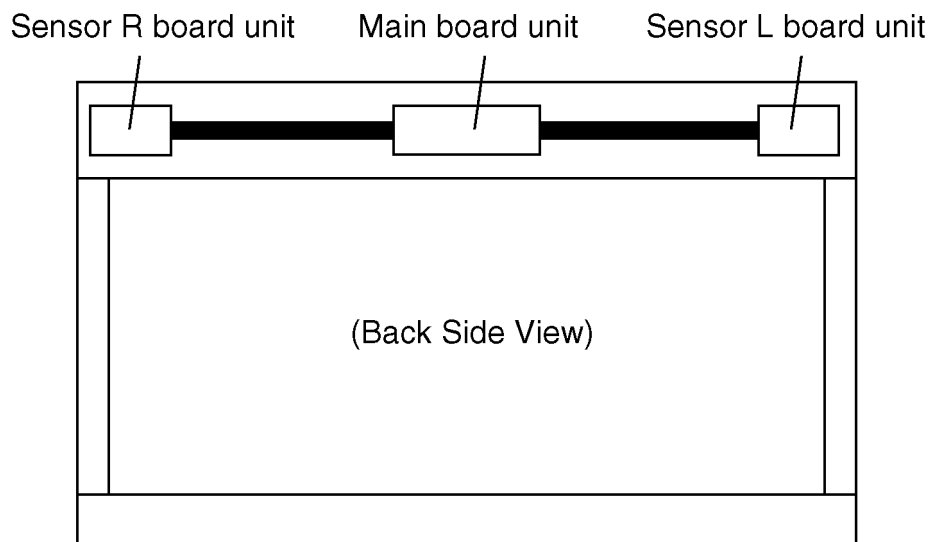
Unit Name	Board Number	Function	Contained data	Accompanying tasks
Main	TXN/12WETB (TY-TP42P10S) TXN/11WETB (TY-TP50P10S)	Main control	Adjusted data	Copying data, adjusting gain (If copying is not available, all adjustment is necessary)
Sensor-L	TXN/22WETB	IR sensor L	-	Adjusting the optical axis. ranee and gain
Sensor-R	TXN/31WETB	IR sensor R	-	Adjusting the optical axis, ranee and gain

R-sensor Board and L-sensor Board emit and receive the infrared rays.

Each Board has the infrared LED and image sensor.

Control Board contains data including infrared rays signal. image sensor-receiving position, image sensor sensitivity and its range, etc in eeprom.
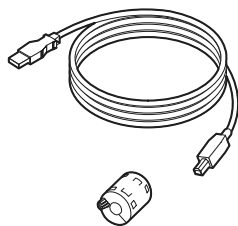
Light receiving-data of left and right sensors is analyzed by this Board and the position is determined.
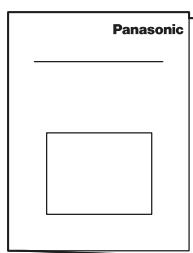
4 Operating Instructions

Accessories

Before assembling, attaching and connecting anything, check all accessories have been included in the product package. Quantities are indicated in ( ).
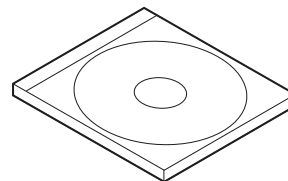
USB cable (1)
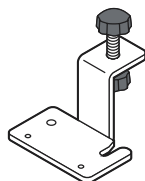**Ferrite core (1)**

Instruction Book (7)

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• English
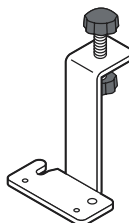• German
• French
• Italian
• Spanish
• Russian
• Ukrainian

CD-ROM (1)
Driver software
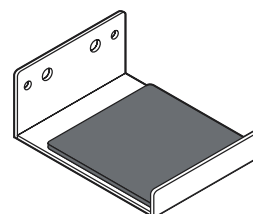
Mounting Tab U Unit (2)
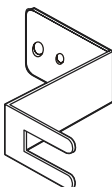
Mounting Tab B Unit (2)
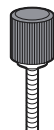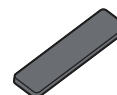
Vertical Hook Unit (2)

USB Hook (1)

High Pick (9)

Screw M4*10 (12)

Rubber Pad-S2 (6)*

* When you use anti glare filters (options), affix these rubber feet to the top of the existing rubber feet at the bottom of the right and left units.

Touch pen (1)

Velcro Strip (2)
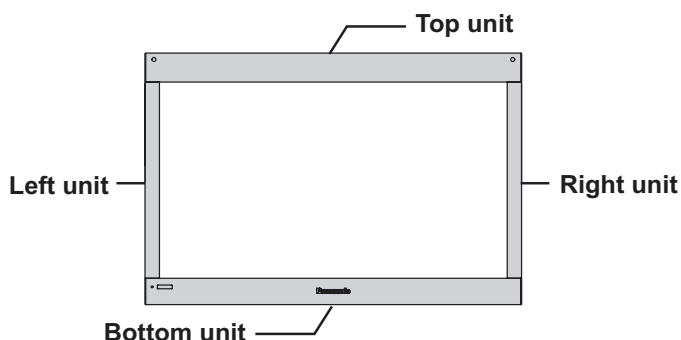
Attached Plate (2)

Screw (4)

To use the plasma display with the below pedestal models, install the spacer included with the touch panel on the pole of the pedestal as shown.
Applicable pedestals: **[TY-ST08-K] [TY-ST08-S]**

• Illustrations and screens appearing in these operating instructions are conceptual views and may differ from the actual equipment.

• Windows is a registered trademark of Microsoft Corporation in the USA and other countries. (The official name of Windows is Microsoft® Windows® Operating System.)
• The names of other companies and products appearing in this publication are the trademarks, registered trademarks or products names of their respective owners.

Names of Parts

Touch Panel (Front)

Top unit

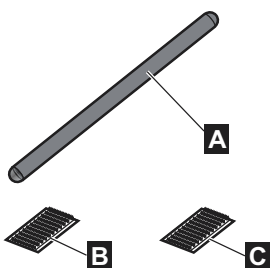Left unit

Right unit

Bottom unit

Touch Panel (Rear)

USB port
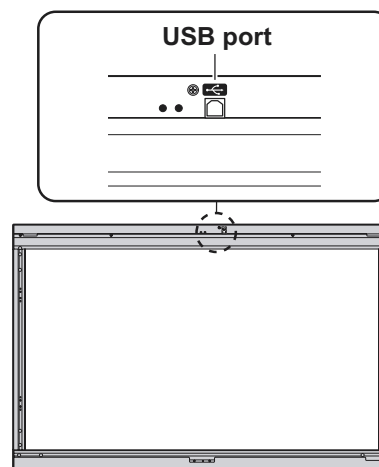
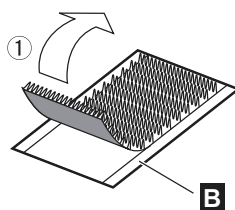■ **Attaching the Velcro strip to the touch pen**

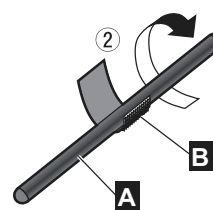• **Prepare the below included accessories**
  A Touch pen
  B Velcro strip (Loop)
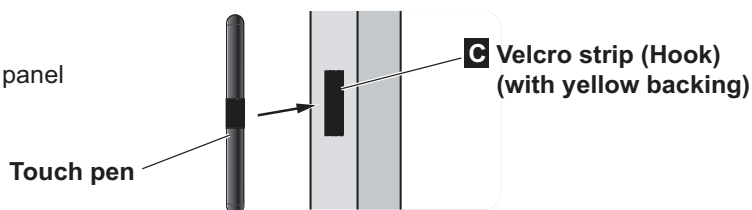 (with white backing)

① Peel off the backing from the Velcro strip.

② Wrap the Velcro strip around the center of the touch pen.

A

B

C

• **Touch Pen**
  Attach the Velcro strip to the touch panel so as to hold the touch pen.

C Velcro strip (Hook) (with yellow backing)

Touch pen

■ **Note on attaching the included spacer to the pedestal**

To use the plasma display with the below pedestal models, install the spacer included with the touch panel on the pole of the pedestal as shown. Applicable pedestals: **[TY-ST08-K] [TY-ST08-S]**

A Attached Plate   **B** Pole

① Set the attached plate over the pole.
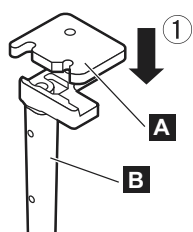
② Slide the attached plate in the direction of the arrow.

③ Lock the attached plate to the pole using the included screws (25 mm in length).

A

B

Touch Panel Assembly

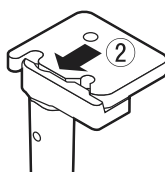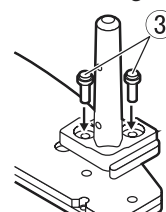**1** **Lay the top, side and bottom units on the packaging cushions.**

① Arrange the packaging cushions (6) on the floor so that their arrows point in the same direction.

② Set the top, side and bottom units inside the grooves of the packaging cushions.
(The arrows on the right and the left units should point toward the top unit.)

Caution

Touch panel projections can be damaged if exposed, therefore lay panel parts in the packaging cushions to assemble.

Packaging cushions   **Top unit**

Bottom unit   **Arrow**
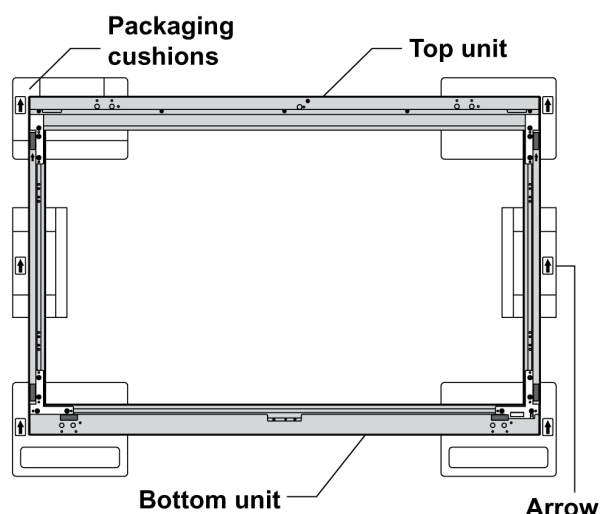
2 **Lock the side units to the top unit.**

① Align the projections on the panel support plate of the top unit with the holes on the left and right units.

② Lock the left and right units to the top unit with Screw M4*10W (4).

Screw M4*10W   Panel support plate

Top unit

Arrow
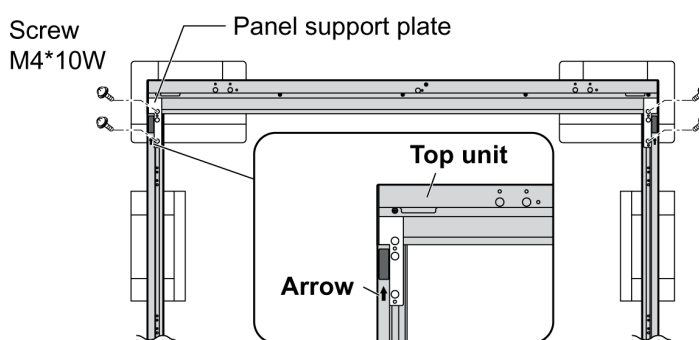
Notes on Assembly

• The installation hole of Screw M4*10W differs for the left and right units.
• If the parts do not fit together properly, switch the left and right units and try again.

3 **Lock the bottom unit to the side units.**

① Align the projections on the panel support plate of the bottom unit with the holes on the left and right units.

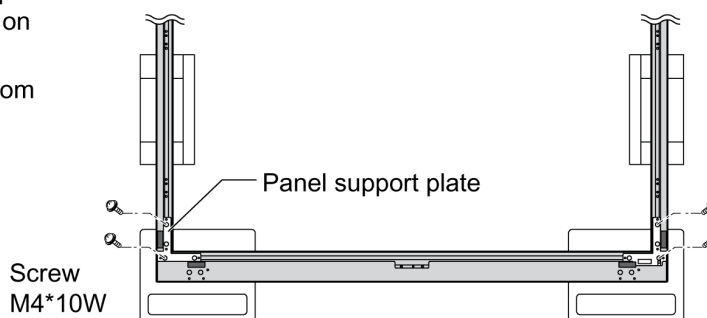② Lock the left and right units to the bottom unit with Screw M4*10W (4).

Panel support plate

Screw M4*10W
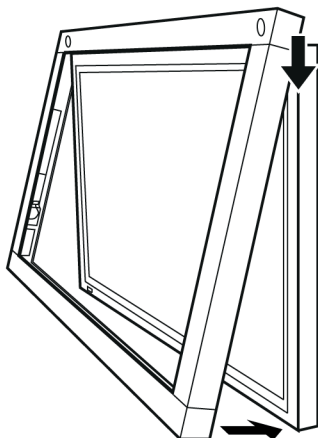
Mounting Touch Panel (in Horizontal Posture)

1   Attach mounting brackets to the touch panel.

1 Fit the protrusion located above the round hole on Mounting Tab U Unit into the hole of the top unit and then tighten High Pick by hand.

2 As shown in the diagram, tighten High Pick by hand to hold Mounting Tab B Unit temporarily after fitting the protrusion located above the round hole on the Mounting Tab B Unit into the hole of the bottom unit. Screw High Pick into the hole of the bottom unit half way.
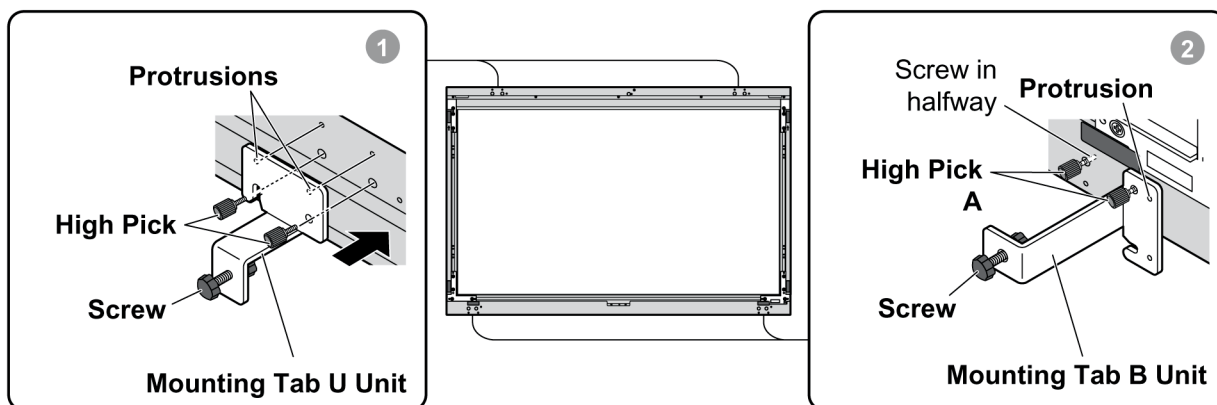
2   Attach the touch panel to the front of the plasma display.
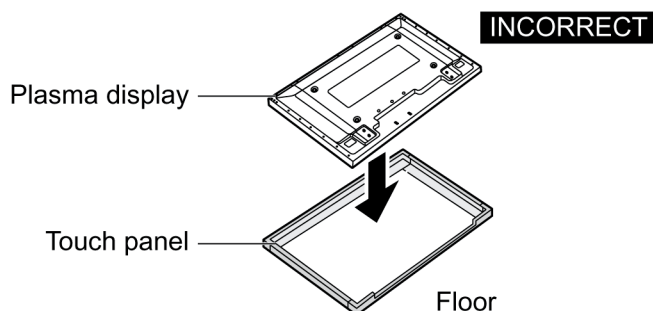

Notes on Assembly

• Work in two or more to attach the touch panel to the plasma display. If the touch panel is dropped, injuries may occur.
• Because it can damage the infrared sensor of the touch panel, do not lay the touch panel down and attach the plasma display to it from above. Service for damage caused by installation in this way is subject to billing.

Mounting Touch Panel (in Horizontal Posture)

3

Lock the touch panel to the plasma display.

1 Loosen High Pick on Mounting Tab B Unit (temporarily held) and rotate the bracket 90 degrees, as shown in the diagram, fit the protrusion located above the round hole on mounting bracket B into the hole of the bottom unit. Tighten both High Pick by hand.
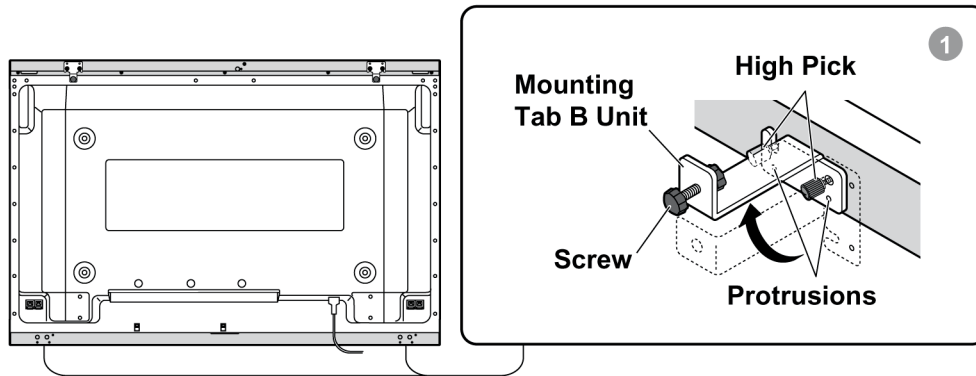
2 Turn the screws on Mounting Tab U Unit and B Unit until the gap between the touch panel and plasma display is closed, then make 2 more full turns to lock in place.

Mounting Touch Panel (in Vertical Posture)

1 **Attach mounting brackets to the touch panel.**

1 Fit the protrusions on the vertical mounting brackets into the holes of the unit and affix the brackets with Screw M4*10W.

2 As shown in the diagrams, tighten High Pick by hand to temporarily hold the brackets Mounting Tab U Unit and B Unit after fitting the protrusions located above the round holes on both brackets into the holes of the top and bottom units. Screw High Pick into the top and bottom units half way.

2 **Attach the touch panel to the front of the plasma display.**

1 To attach the touch panel to the plasma display, align the top and bottom edges of the touch panel with the top and bottom edges of the plasma display. Once attached, adjust the right black frames on the front of the plasma display are the same width.
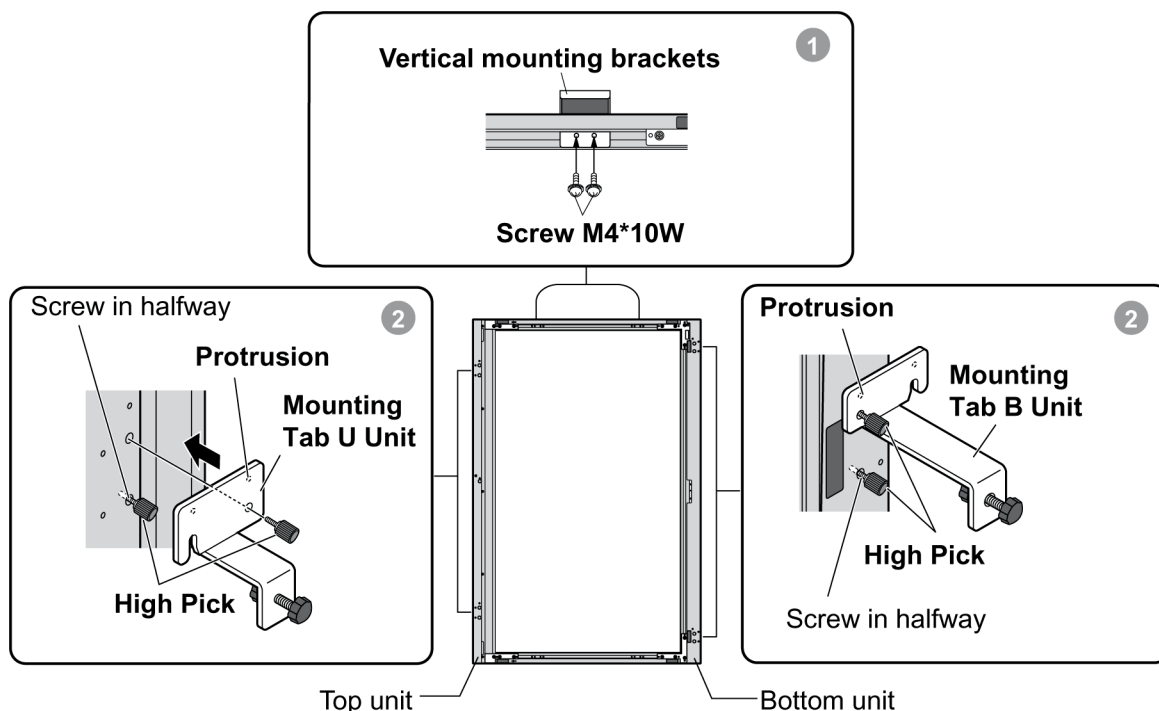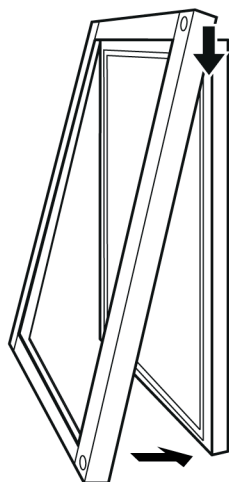
Notes on Assembly

• Work in twos or more to attach the touch panel to the plasma display. If the touch panel is dropped, injuries may occur.
• Because it can damage the infrared sensor of the touch panel, do not lay the touch panel down and attach the plasma display to it from above. Service for damage caused by installation in this way is subject to billing.
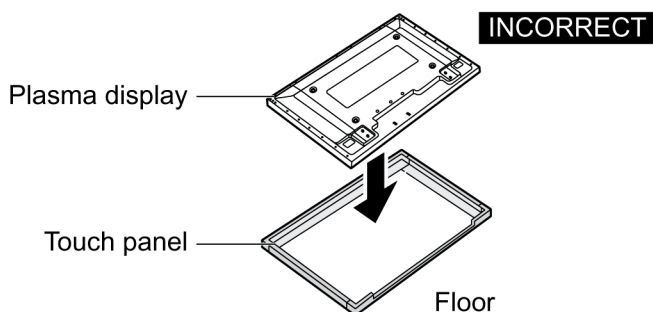
Mounting Touch Panel (in Vertical Posture)

3

Lock the touch panel to the plasma display.

① Loosen High Pick on Mounting Tab U Unit and B Unit (temporarily held) and rotate the brackets 90 degrees, as shown in the diagrams, fit the protrusions located above the round holes on the brackets into the holes of the top and bottom units. Then tighten both High Pick by hand.
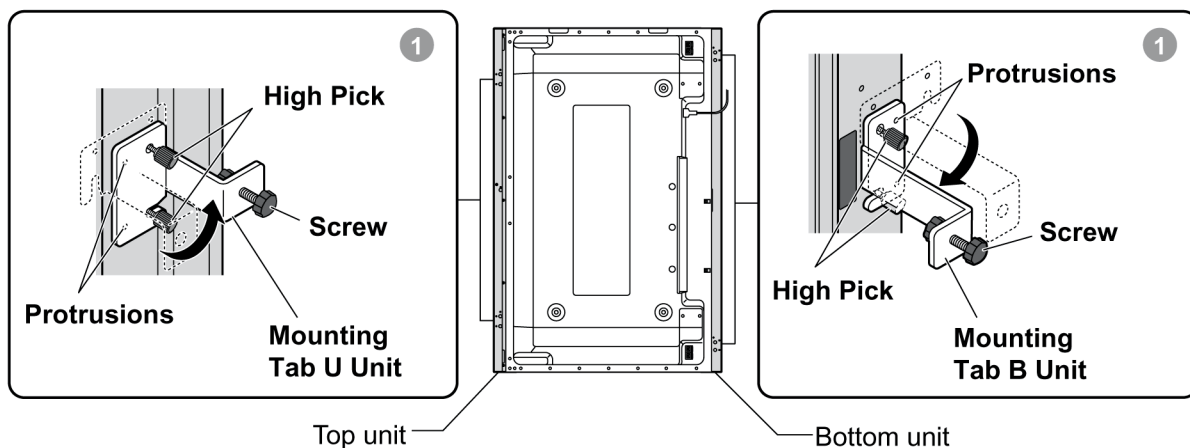
Top unit

Bottom unit

② Turn the screws on Mounting Tab U Unit and B Unit until the gap between the touch panel and plasma display is closed, then make 2 more full turns to lock in place.

Note

If you are using the touch panel in vertical position, set the sensor position of the touch panel as "Vertical".

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Setup Procedure

1   **Install the Driver Software**

Do not connect the USB cable yet.

2   **Connect the touch panel and computer**

3   **Restart your computer**

• After restarting your computer, check 🖳 appears in the task tray.
• If the icon does not appear, if it appears with an X over it or if an error message is displayed, see "Before Calling for Service" and "Error Messages".

4   **Calibrate the touch panel**

This completes the basic setup.

■ **Driver Software Operating Environment**
The Driver software is supported by both the Japanese and English versions of Windows 2000 (SP4 or later), Windows XP (SP1 or later) and Windows Vista (32-bit only).
* Windows is a registered trademark of Microsoft Corporation in the USA and other countries.
The following environment is required to correctly install and start up the Driver software.
<Windows 2000 or Windows XP>
• CPU … Pentium III or later (2 GHz or faster Celeron or Pentium 4 recommended)
• Memory … 512 Mbytes or more
• HDD … 30 Mbytes or more available area
• Compatible with USB 1.1/2.0 interface

■ **Driver Software Restrictions**
• The mouse emulation feature cannot be used on the login window that appears at Windows startup, when restoring from the suspended state or when the screen saver is unlocked. The mouse emulation feature is activated after you log in.
• There is no remote wakeup feature that activates the screen from the suspended state by touching the touch panel.
• If your system does not meet the requirements above or the applications use up too much memory, the response of the touch panel may slow down.
• Only Windows is supported. (Operation is not guaranteed in other environments than the above.)
• If using Windows Vista and user account control, the touch panel does not respond to touch when windows, such as the Properties window, that require administrator authority to access appear.

■ **Restrictions on competing drivers**
• If you try to install a driver from another manufacturer in the same computer in which this Driver software is installed or inversely try installing this Driver software in a computer where another driver is already installed, the driver may not install properly.
In such case, uninstall the current driver and then install the new driver.
Also, if a driver from another manufacturer is started up while this Driver software is already running, the error message "A driver is already running." may be displayed.
In such case, quit both drivers and then start up the driver you want to use.

Driver Software Installation

Notes on Installation

Connect the USB cable after installing the Driver software.
For Windows 2000/XP : Log in with administrator privileges.
For Windows Vista   : For normal users to install the Driver software, users must input the administrator's
                       password. However, if the user account control (UAC) is inactivated, you must log in
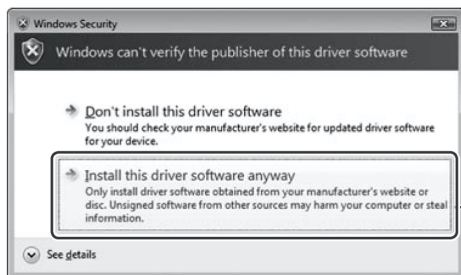   with administrator privileges.

1 **Load the included CD-ROM into your computer.**
The setup program starts automatically.
• If the setup program does not start up automatically:
  For Windows 2000/XP : Select [Start] → [Run...] → Setup.exe.
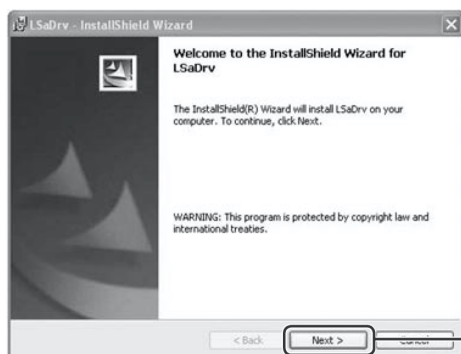 For Windows Vista   : Select [Start] (Windows mark button) → [All Programs] → [Accessories] →
                          [Run...].

With Windows Vista, a warning message similar to that at left may appear during the installation process.
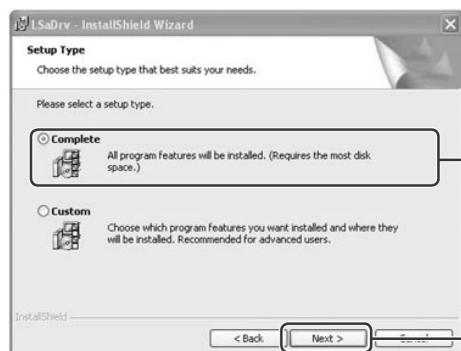
Click on "**Install this driver software anyway**".

2

Here following, the setup procedure for Windows XP is shown.

Click this button.

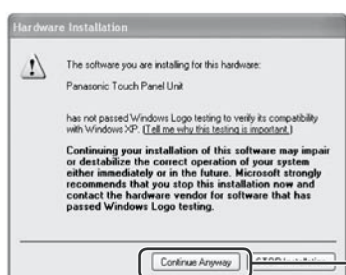**3**

Select the item indicated at left.

Click this button.
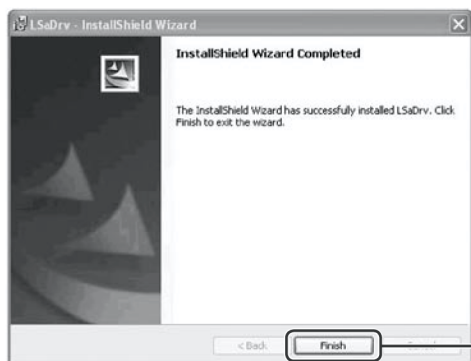
14

Driver Software Installation

4

Click this button.

A warning message similar to that at left may appear.

Click this button.

5

When the window at left appears, installation is complete.

Click this button.
The "LSaDrv" folder is saved in [All Programs] under the Start menu.
• If you select a complete installation, the Driver software is automatically installed in the [Startup] menu, therefore the Driver software starts up when Windows starts up, making the touch panel immediately operable.

Note on reinstallation (upgrading)

If using Windows Vista, some specifications prevent users from operating files in the Program Files folder.
For that reason, some of the driver files in the Program Files folder are automatically copied to the Compatibility folder from where they can be referenced.
The files in the Compatibility folder are not automatically deleted or updated even if the Driver software is uninstalled and reinstalled.
If this Driver software is uninstalled and reinstalled, it starts up at the same settings that existed prior to being uninstalled, unless the "lsdrv.ini" file in the Compatibility folder is deleted.
This occurs because the files in the Compatibility folder are referenced for settings.
To completely uninstall this Driver software, manually delete the files in the Compatibility folder.

* With Windows Vista and OSs of some specifications, the lsdrv.ini file is not overwritten when the Driver software is upgraded if the update date of the lsdrv.ini file is newer than the upgrade data.

Connections and Plug-Ins
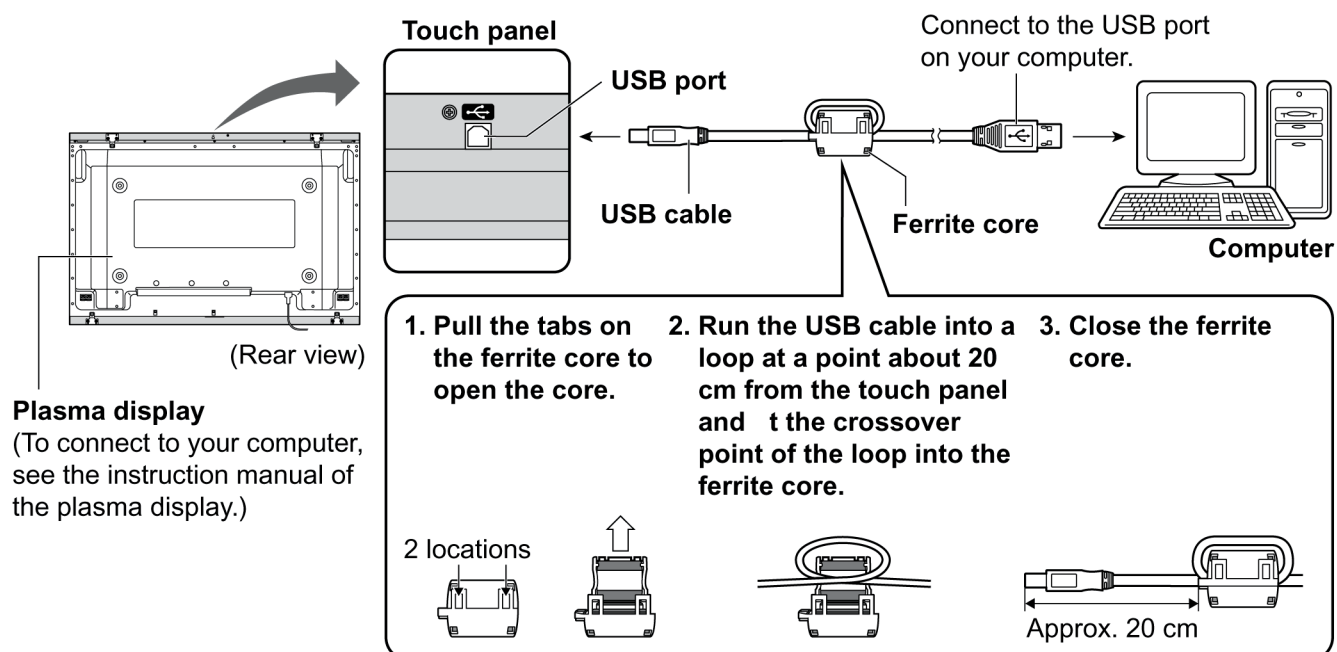
1 **Activate power to the plasma display and computer.**
Check that the computer's OS starts up.

2 **Connect the touch panel and computer with the USB cable.**
When connected, Plug & Play starts.

Caution

• Connect the USB cable only after installing the Driver software.
• Before connecting the USB cable, attach the ferrite core to the cable. (See below.)
• Check that the USB power supply of your computer is a max. 500 mA.

Touch panel

USB port

Connect to the USB port on your computer.

USB cable

Ferrite core

Computer

(Rear view)

Plasma display
(To connect to your computer, see the instruction manual of the plasma display.)

1. Pull the tabs on the ferrite core to open the core.

2. Run the USB cable into a loop at a point about 20 cm from the touch panel and t the crossover point of the loop into the ferrite core.

3. Close the ferrite core.

2 locations

Approx. 20 cm

Caution

• Obstructing the infrared transmissive part with your fingers, for instance, or touching the screen while connecting the USB cable might be detected as defective elements. If used as is, the response of the touch panel might slow down.
 In such case, with the computer started up, disconnect the USB cable and reconnect it.
• To use a USB hub, power must be supplied to the hub. For details, see the instruction manual of your USB hub.

3 **Attach the USB cable anchor.**

1 Attach the USB cable anchor to the USB cable.

2 Align the screw holes on the USB cable anchor with the holes on the touch panel.

3 Tighten High Pick by hand.

High Pick

USB Hook
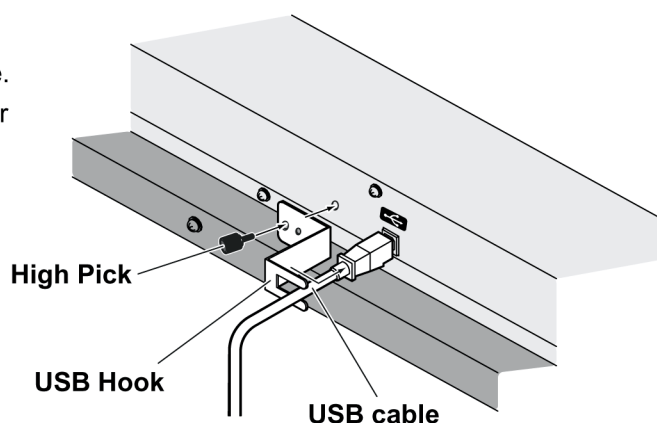
USB cable

Connections and Plug-Ins

■ Plug & Play

Using Plug & Play, the touch panel is automatically detected as a USB device when the USB cable is connected. (The operating window that appears after that differs slightly according to OS.)
Plug & Play starts up according to the number of connected touch panels.

Windows 2000/Vista

The "Found New Hardware" window appears and the device driver is automatically installed. However, with Windows Vista, installation ends without displaying any windows.

Windows XP

1

When a window similar to that at left appears, select "No, not this time".

Click this button.

2

Select "Install the software automatically (Recommended)".

Click this button.

3

When a warning message similar to that at left appears, click on the "Continue Anyway" button.
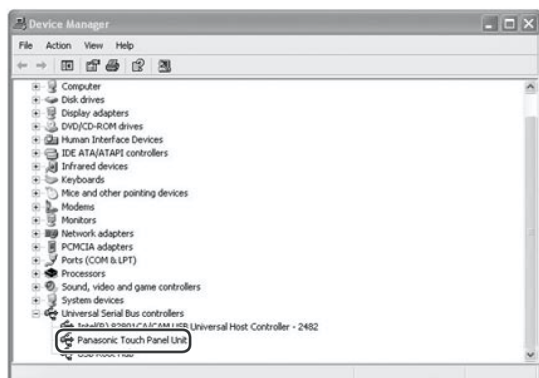
4

When a window similar to that at left appears, installation is complete.

Click this button.

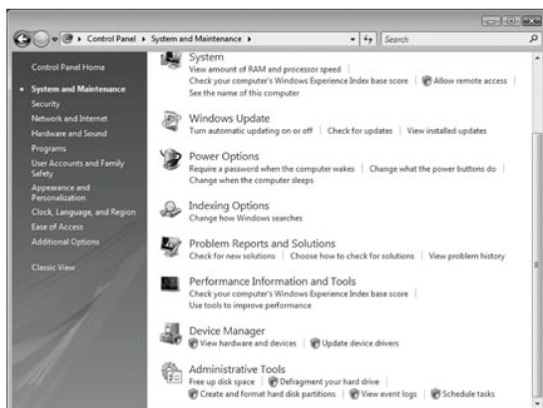# Connections and Plug-Ins

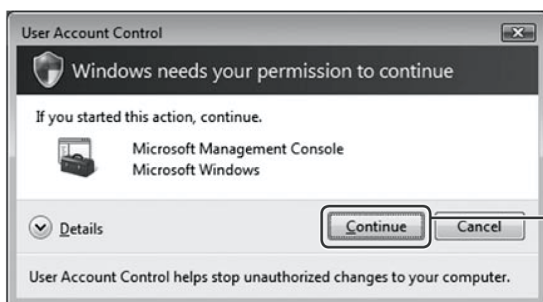## ■ Checks After Installation

Windows 2000/XP

Select [Start] → [Control Panel] → [System] and then select [Device Manager] from the Hardware tab. Check that "Panasonic Touch Panel Unit" appears under "Universal Serial Bus controllers".
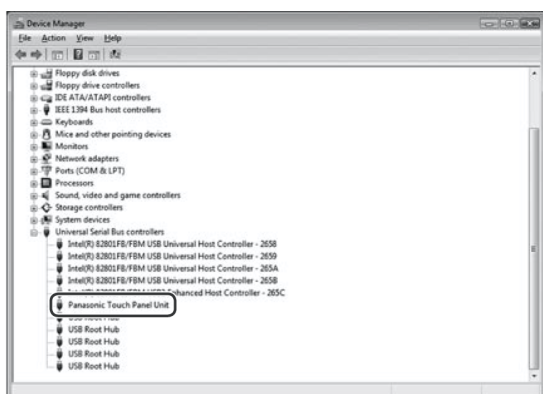
Windows Vista

1

Click on [Start] (Windows mark button) → [Control Panel] → [System and Maintenance] → [Device Manager].

A warning message similar to that at left may appear.

Click this button.

2

When the Device Manager window opens, check that "Panasonic Touch Panel Unit" is shown under "Universal Serial Bus controllers".
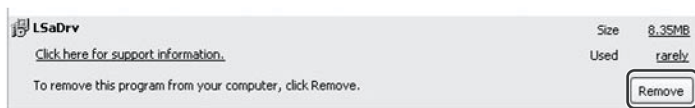
Driver Software Uninstallation

Note on Uninstallation

Quit the Driver software before uninstalling it.

Windows 2000/XP

1 Select [Start] → [Control Panel] → [Add or Remove Programs].
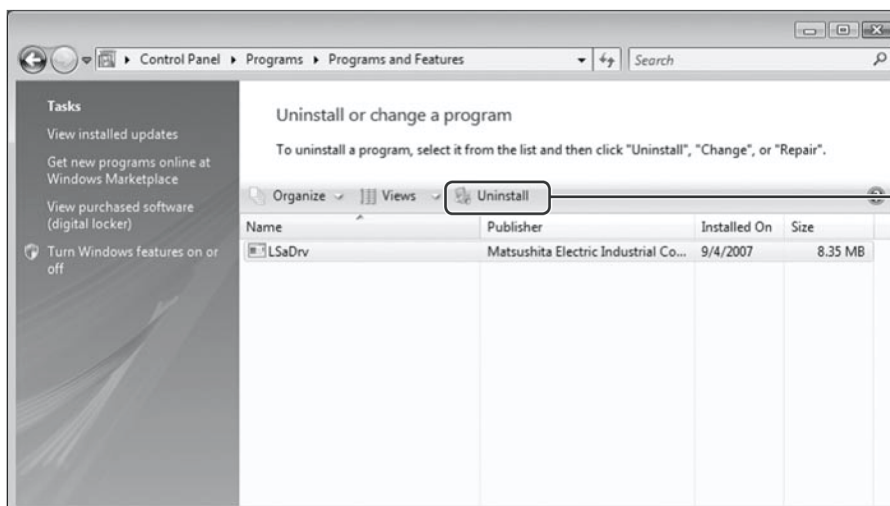
2 Select "LSaDrv".

Click this button.

Windows Vista

1 Click on [Start] (Windows mark button) → [Control Panel] → [Programs] → [Programs and Features].

2 Select "LSaDrv" from the "Uninstall or change a program" windo w.

Click this button.

Select "Yes" to uninstall the Driver software.

How to Use the Driver Software

■ Driver Software Startup

The Driver software starts up automatically when the computer starts up. Below is explained the procedure for manually starting up the Drive software. The Driver software can be started up in two ways.
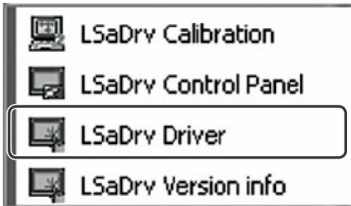
Method 1

Double-click on the "LSaDrv Driver" icon on the desktop.
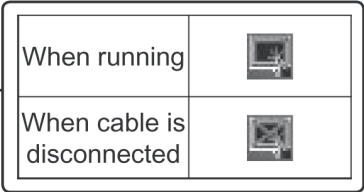The Driver software starts up.

LSaDrv Driver

Method 2

Select [Start] → [All programs] → [LSaDrv] → [LSaDrv Driver].
The Driver software starts up.

- LSaDrv Calibration
- LSaDrv Control Panel
- LSaDrv Driver
- LSaDrv Version info

When the Driver software starts up, the icon will appear at the bottom right-hand corner of the screen.

17:42

When running	
When cable is disconnected	

(If the USB cable is disconnected, an X appears over the icon.)
The touch panel works only when the touch panel and computer are connected over a USB cable.
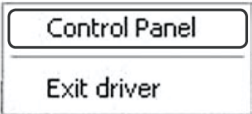
Note

The touch panel may not respond smoothly for a while after the Driver software starts up.

■ Control Panel Startup
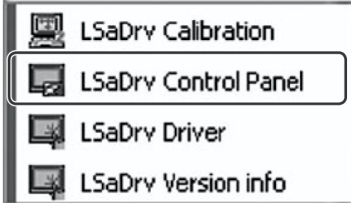
There are two ways to start up the setup panel.

Method 1

Click on the icon in the task tray and select "Control Panel" from the menu that appears.
The setup panel starts up.

Control Panel
Exit driver

Method 2

Select [Start] → [All Programs] → [LSaDrv] → [LSaDrv Control Panel].
The setup panel starts up.

- LSaDrv Calibration
- LSaDrv Control Panel
- LSaDrv Driver
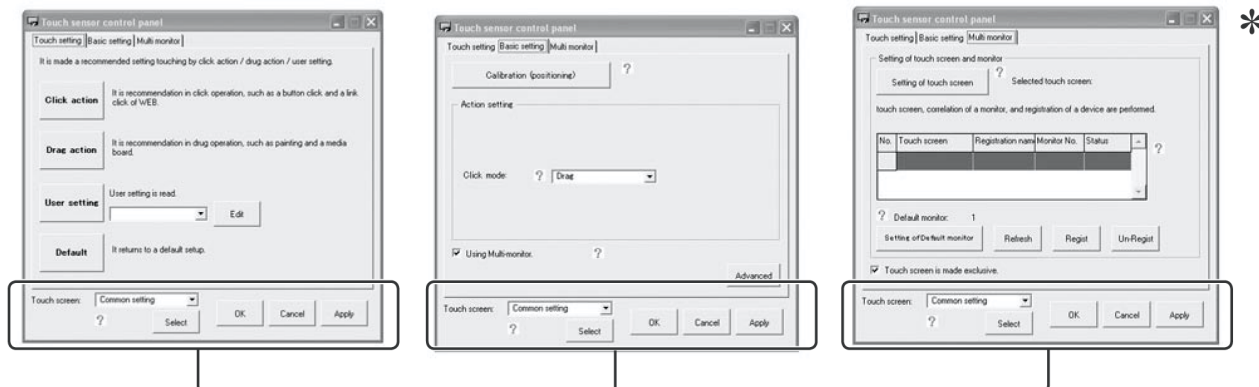- LSaDrv Version info

■ Exit Driver Software

Click on the icon in the task tray and select "Exit driver" from the menu that appears.

Touch Panel Setup

Explanation of Setup Panel Items

■ **The setup panel has three tabs: "Touch setting", "Basic setting" and "Multi monitor".**

<Common Area>

Touch screen:
The combo box contains "Common setting" and names of registered touch panels. It is used to select touch panels for setting.
The setup selected for "Common setting" is applied when the "Common setting is used" checkbox is selected when setting up registered touch panels.

Apply:
Applies the setup to the operation.

Cancel:
Ends the setup panel without doing anything.

OK:
Applies the setup to the operation and quits the setup panel.

Select:
Opens the "Please touch a touch screen" dialog box. If the touched panel is already registered, it appears in the combo box.

✻ : When you tick "Using Multi-monitor." on the "Basic setting" tab, the "Multi monitor" tab and "Touch screen" will appear.

Touch Panel Setup (Explanation of Setup Panel Items)

■ Touch setting

This tab is for optimizing touch panel use.
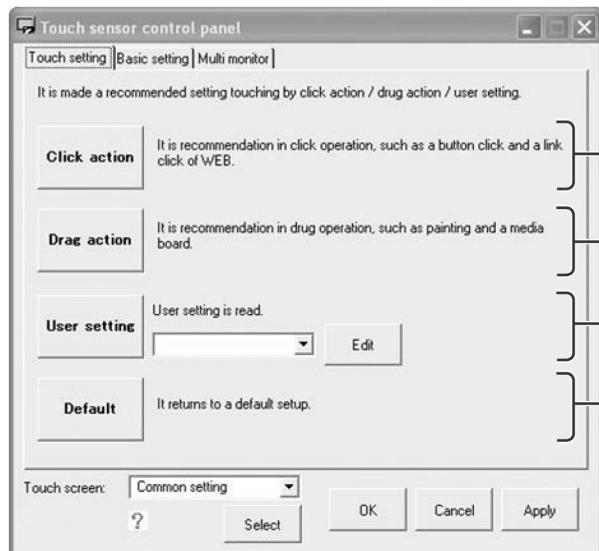
Click action:
This is the best setting if often using clicking operations (i.e., web link clicks, etc.).

Drag action:
This is the best setting if often using dragging operations (i.e., drawing, electronic blackboards, etc.).

User setting:
Applies the setup selected in the combo box.

Default:
Restores the setting made when the Driver software was first installed.

■ Basic setting

This tab is for making the basic settings for using the touch panel.

Calibration (positioning):
Aligns the touch position and cursor position.

Click mode:
Sets the click operation used when touching the touch panel.

Using Multi-monitor:
Select the "Using Multi-monitor." checkbox to connect the touch panel with multiple monitors.
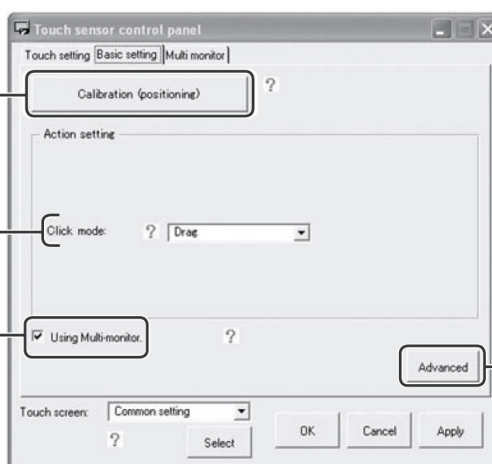
Advanced:

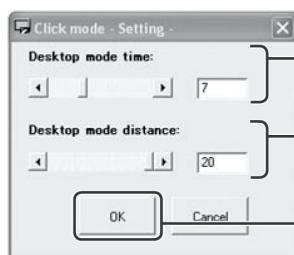# Touch Panel Setup (Explanation of Setup Panel Items)

• Click mode

	Operation
Drag (default)	When the pen touches the touch panel, the computer reacts like the mouse button was held down. When the pen is lifted off the touch panel, the computer reacts like the mouse button was released. Moving the pen across the touch panel is like dragging.
Click on touch	When the pen touches the touch panel, the computer reacts like the mouse was clicked. When the pen is moved across the touch panel, the cursor does not follow it.
Click on release1	When the pen is lifted off the touch panel, the computer reacts like the mouse was clicked. When the pen is moved across the touch panel, the cursor does not follow it.
Click on release2	When the pen touches the touch panel, the computer reacts like the mouse button was held down. When the pen is lifted off the touch panel, the computer reacts like the mouse button was released. When the pen is moved across the touch panel, the cursor does not follow it.
Mouse mode	When the pen touches the touch panel, the computer reacts like the mouse was clicked. Though the cursor follows the pen when moved across the touch panel, dragging is not possible.
Hovering	When the pen is lifted off the touch panel, the computer reacts like the mouse was clicked. Though the cursor follows the pen when moved across the touch panel, dragging is not possible.
Desktop mode	Allows the dwell time and dwell distance before dragging begins to be set. (See below.)

• Desktop mode
- Only when the pen touches the panel within the set dwell range, over the set dwell time, the computer reacts like the mouse button was held down. Moving the pen across the touch panel is like dragging.
- In other operations than above, such as when the pen is moved outside the set dwell range within the set dwell time, the computer reacts in the same way as the Hovering click mode.

1 Click on the "Setting" button that appears when "Desktop mode" is selected for "Click mode". The desktop setting window opens.

2 Set the touch dwell time until dragging can begin. (Units: 1/10 sec)

3 Set the touch dwell range until dragging can begin. (Units: 10/65535 of a window)

4 Click on the "OK" button, followed by the "OK" or "Apply" button on the setup panel.

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Touch Panel Setup (Explanation of Setup Panel Items)

■ Multi monitor

This tab is used to input settings when using multiple monitors.

When you tick "Using Multi-monitor." on the "Basic setting" tab, the "Multi monitor" tab will appear.

Setting of touch screen:
Acquires the name of the touch panel to set up.

List of registered and connected touch panels:
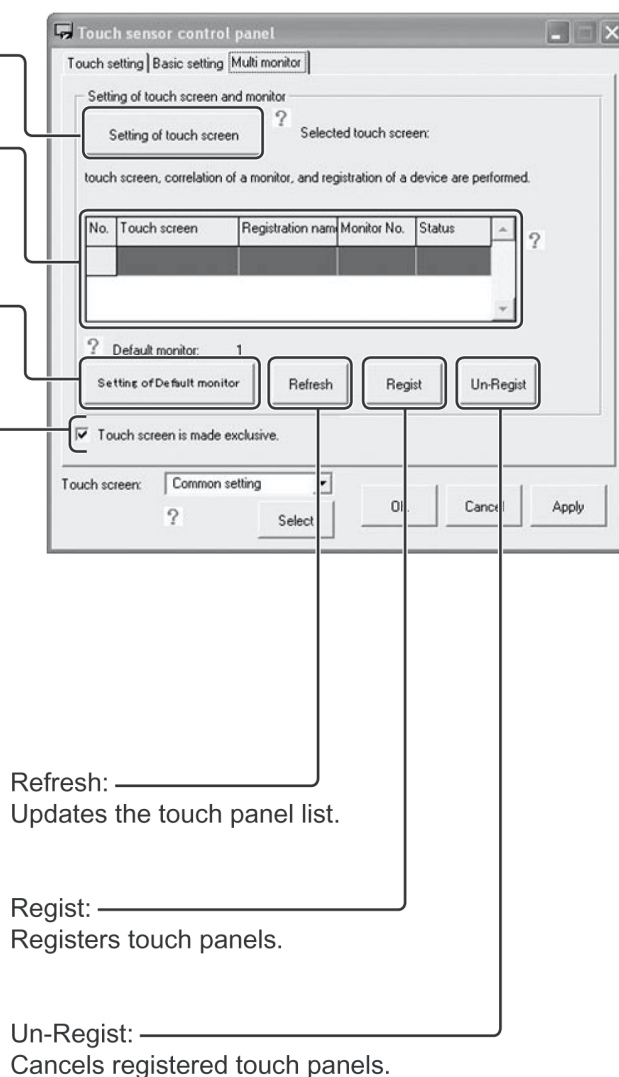Displays a list of touch panels connected to the computer as well as disconnected but registered touch panels.

Setting of Default monitor:
Sets the monitor No. to assign to unregistered touch panels.

Touch screen is made exclusive:
When a checkmark is placed in this checkbox, while one touch panel is being touched, other touch panels are inactive.

Refresh:
Updates the touch panel list.

Regist:
Registers touch panels.

Un-Regist:
Cancels registered touch panels.

Touch Panel Setup (Advanced setting)

Advanced setting

The "Advanced" window appears when the "Advanced" button on the "Basic setting" tab of the setup panel is clicked on.
The "Touch screen", "OK", "Cancel" and "Apply" buttons operate in the same way as the common area buttons of the setup panel.
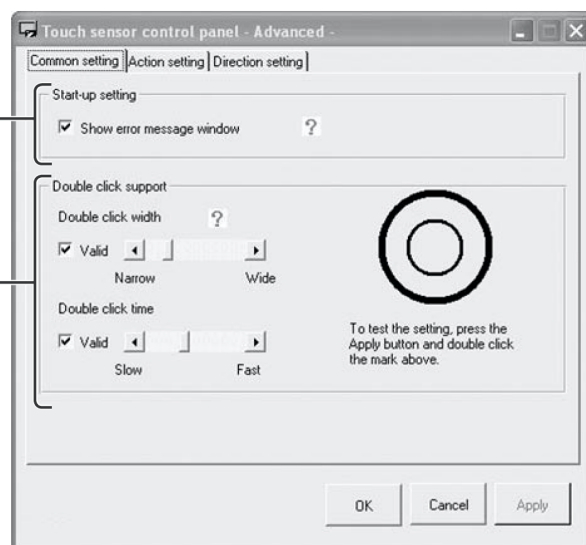
■ Common setting

Show error message window:
When a checkmark is placed in this checkbox, an error message is displayed if an error occurs. When the checkmark is removed from this checkbox, an error message is not displayed even if an error occurs.

Double click support:
This area sets the effective range and time for recognizing the second of two consecutive touches on the touch panel as a double-click. When the checkmark is removed from the "Valid" checkbox, the computer default is applied.
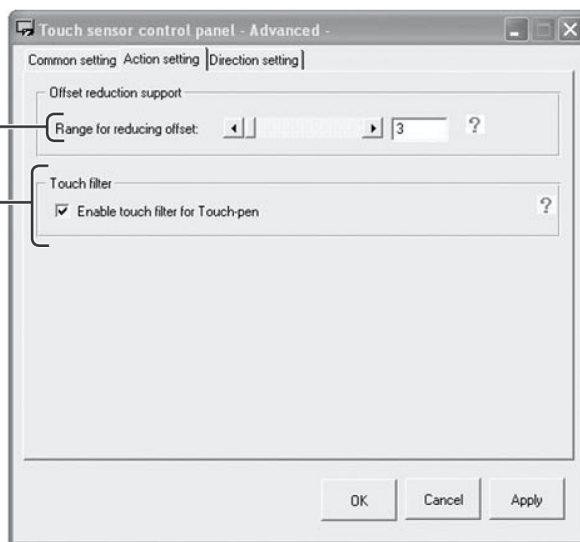
Touch Panel Setup (Advanced setting)

■ Action setting

Range for reducing offset:
Unlike a mouse click, a touch can slip slightly. This slipping can be set so that it is recognized as a slip and not the user's intention to drag an object. The higher the setting, the wider the slip area. (If set too low, clicking and double-clicking operations can be misinterpreted.)

Touch filter:
Because of sensor characteristics, the pen is sometimes judged to have touched the touch panel in a position slightly higher than the actual contact point, causing the cursor to move to an unintended position. When you select this checkbox, the displacement between the touched position and cursor position is neutralized, by delaying the touch recognition. However, follow degrades slightly.
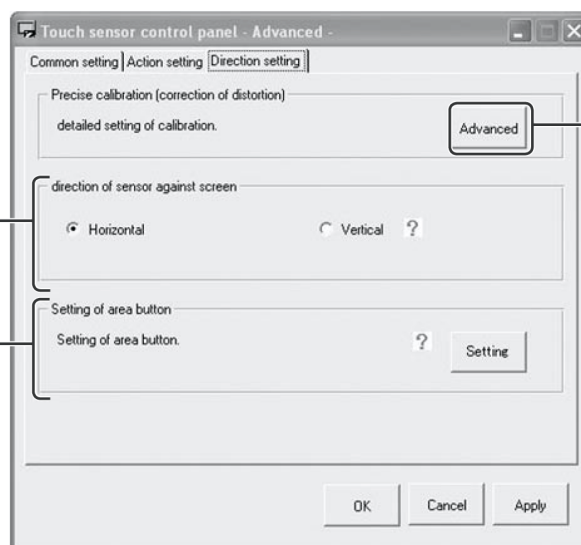
■ Direction setting

direction of sensor against screen:
This area sets the sensor position of the touch panel.

Setting of area button:
This button creates virtual (area) buttons in the touch area and assigns operations to them.

Precise calibration (correction of distortion):
This button opens a dialog box for setting information displayed on the touch position correction window in detail.

Touch Panel Setup

Calibration

If the touch position and cursor position do not match, the touch panel can be calibrated so that they do.

Notes

• If connecting multiple touch panels to a single computer in a multiple monitor environment, see "Multiple Monitor Setup".

• Use only the touch pen included with this touch panel. Operation is not guaranteed with other products.
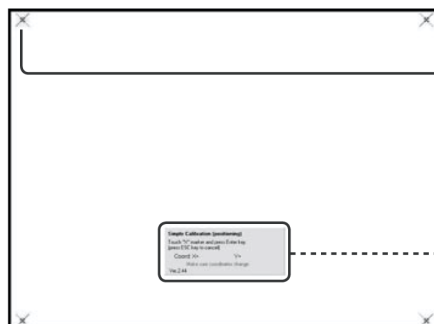
Start up the setup panel.
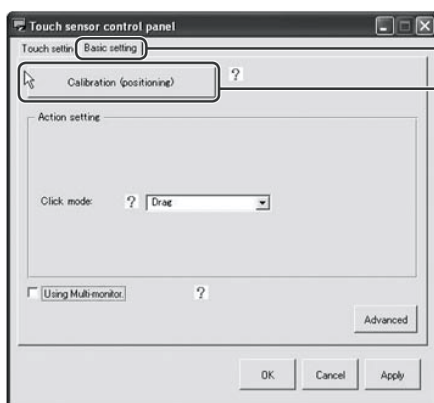
Click on the "Basic setting" tab.

Click this button.

Touch the touch panel at a slight distance away from the highlighted marker and slide your finger to the center of the highlighted marker.
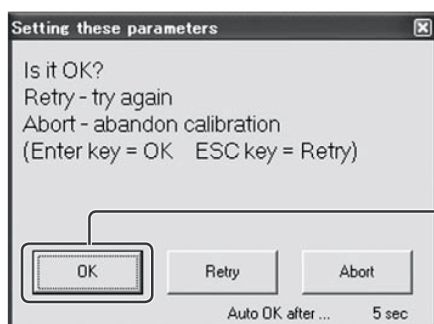Check that the coordinates have changed.

Highlighted marker

• Once you touch X, you can also cancel or save the settings using the keyboard.

Remove your finger from the highlighted marker. Two seconds later, the coordinates are automatically entered and the next marker is highlighted.
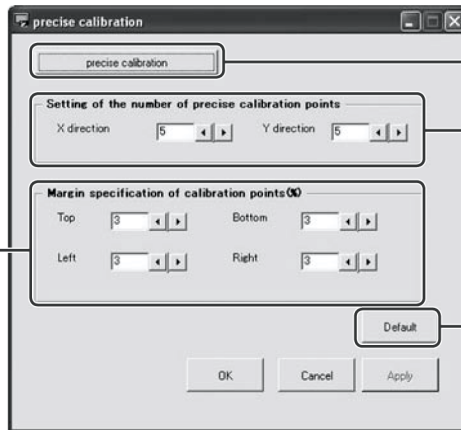After touching all of the markers, the below message appears.

Click on the "OK" button.

"OK" is entered automatically 10 seconds later if nothing is done. Touching the message window stops the count. This lets you check whether the touch panel has been properly calibrated or not.

Touch Panel Setup

• precise calibration

① precise calibration:
This button activates the calibration window at the settings made in Setting of the number of precise calibration points and Margin specification of calibration points (see ④ below).

② Setting of the number of precise calibration points:
This area sets the number of points to display in the calibration window. The X (horizontal) axis and Y (vertical) axis appear on the calibration window.

③ Default:
Returns the Setting of the number of precise calibration points and Margin specification of calibration points settings to their defaults.
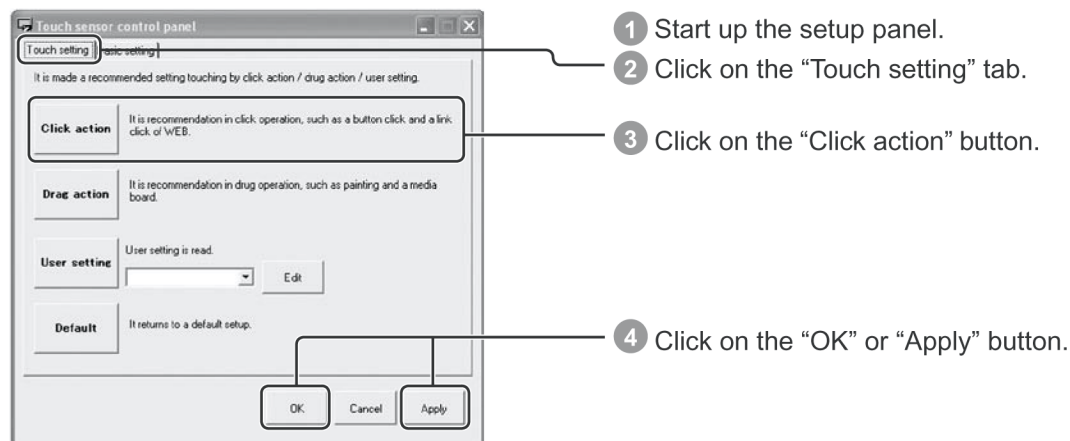
④ Margin specification of calibration points (%):
This area sets the margins around points that appear on the calibration window. (Units: 1/65535 of a window)
If calibration edge points run outside of the picture when using a projector, they can be moved towards center by setting wider margin.

Touch Panel Setup

Touch setting

■ Click action

This setting enables easy clicking operations on the touch panel.

1 Start up the setup panel.
2 Click on the "Touch setting" tab.

3 Click on the "Click action" button.
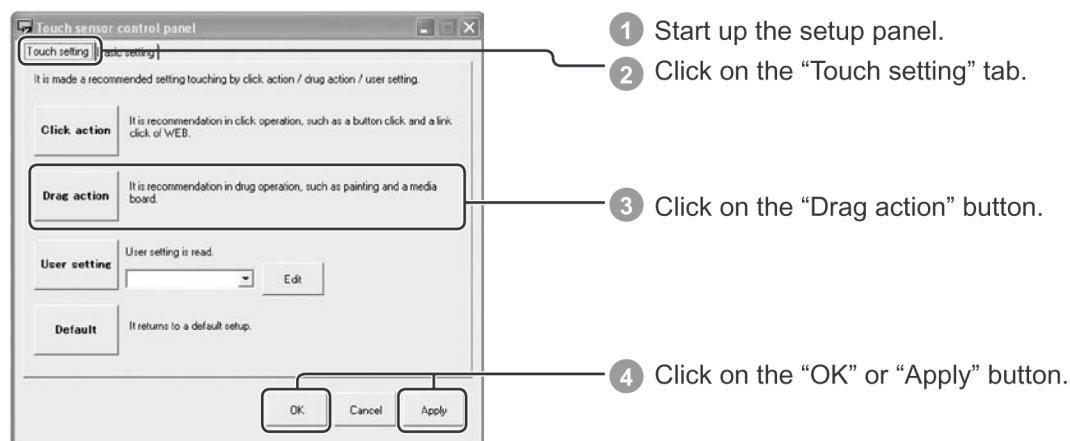
4 Click on the "OK" or "Apply" button.

Note

The Click action button sets double-clicking range and time slightly longer than ordinary clicking and differentiates slight movements at the touch position from dragging so that clicking is accurately done by touching.
For this reason, some follow is sacrificed.

■ Drag action

This setting enables dragging operations when the touch panel is used to draw pictures or as an electronic blackboard.

1 Start up the setup panel.
2 Click on the "Touch setting" tab.

3 Click on the "Drag action" button.

4 Click on the "OK" or "Apply" button.

Note

The Drag action button emphasizes follow so that smooth lines can be drawn on the touch panel. However , double-clicking and clicking operations may become more difficult.
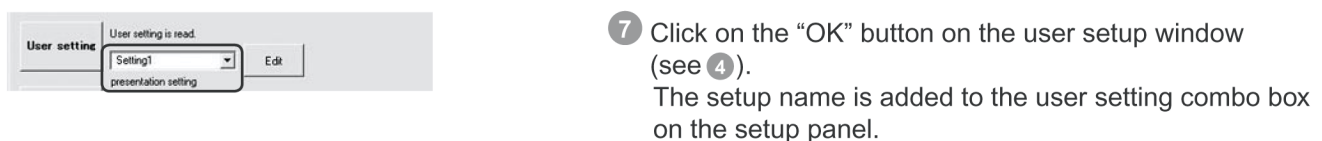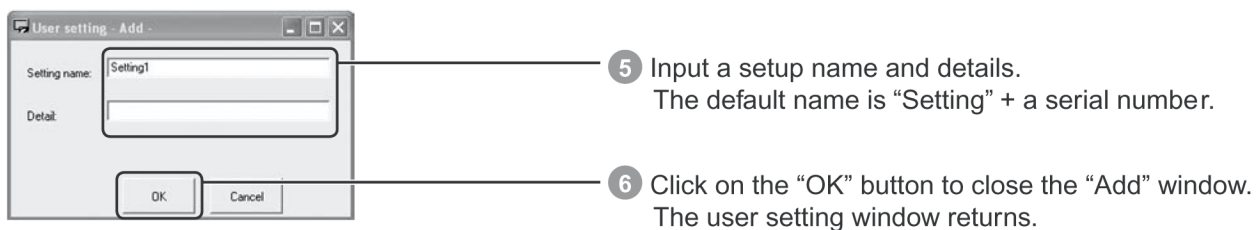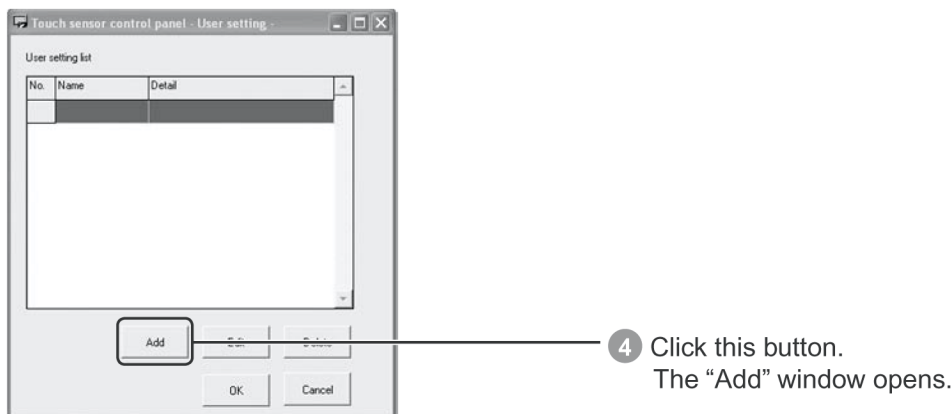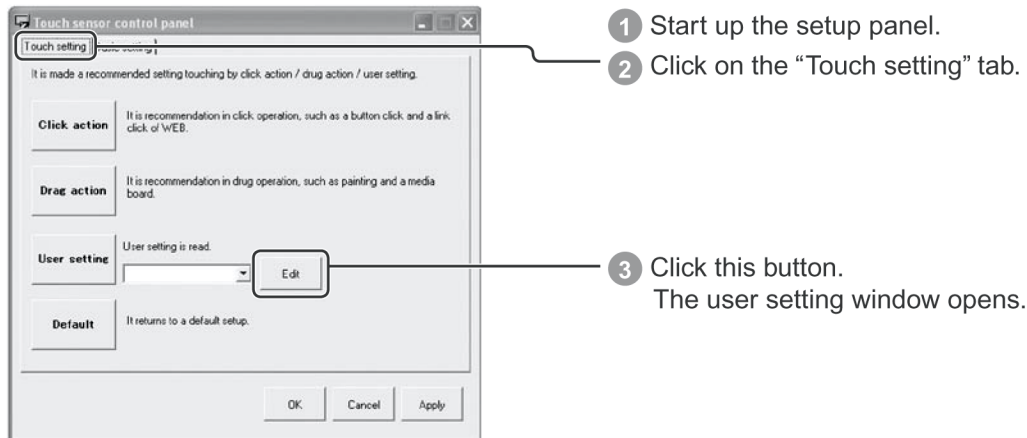
Touch Panel Setup

■ User setting

Personalizing the touch panel setup by the way the panel is used makes it easier to use. Setups can be saved and changed according to how the panel is used.

• Saving the Current Setup

The current setup on the setup panel is added to the user setup.

1 Start up the setup panel.

2 Click on the "Touch setting" tab.

3 Click this button.
   The user setting window opens.

4 Click this button.
   The "Add" window opens.

5 Input a setup name and details.
   The default name is "Setting" + a serial number.

6 Click on the "OK" button to close the "Add" window.
   The user setting window returns.

7 Click on the "OK" button on the user setup window
   (see **4**).
   The setup name is added to the user setting combo box
   on the setup panel.

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Touch Panel Setup

• Calling Saved Setups

1 Select a setup from the user setting combo box (p. 22) and click on the "User setting" button.

**2** Click on the "OK" or "Apply" button.

• Changing Setups

1 Click on the "Edit" button on the "Touch setting" tab of the setup panel.
The user setting window opens.

2 Select the user setup to change from the list and click on the "Edit" button.
The "Add" window opens.

3 To change the saved user setup to the current setup on the setup panel, click on the "OK" button.
(The settings on the setup panel when the user setting window is started up are saved. To change just the setup name or details without changing the set value, call up the targeted setup on the setup panel and then edit the user setup.)
The user setup window returns.

4 Click on "OK" button.
Changes are reflected in the user setting combo box on the setup panel.

Touch Panel Setup

Area Button Setup

Various functions such as starting up specific applications or opening files can be assigned to virtual (area) buttons on the touch panel.

1 Start up the setup panel.

2 Click on the "Advanced" button on the "Basic setting" tab.
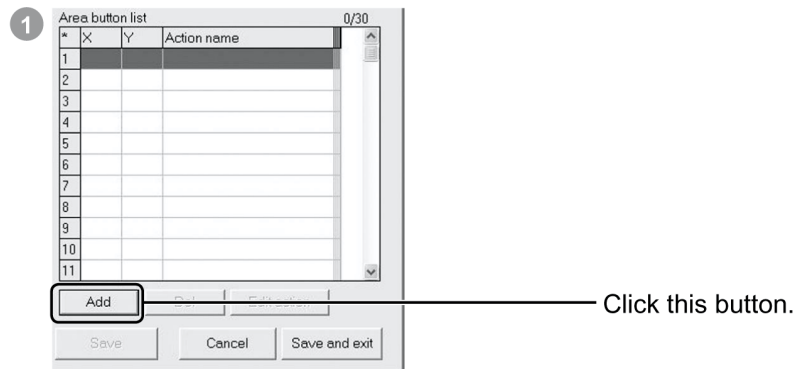
3

Click on the "Direction setting" tab.

Click this button.
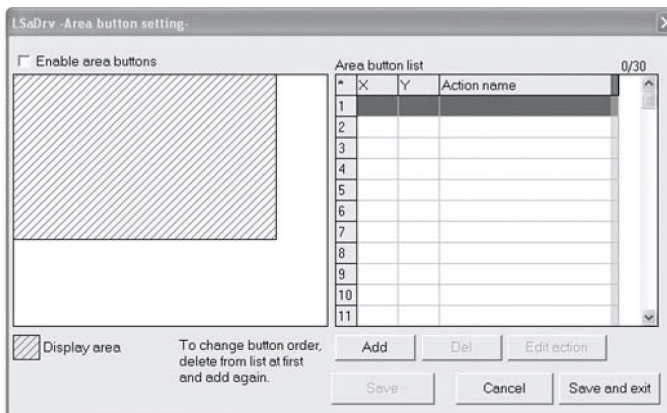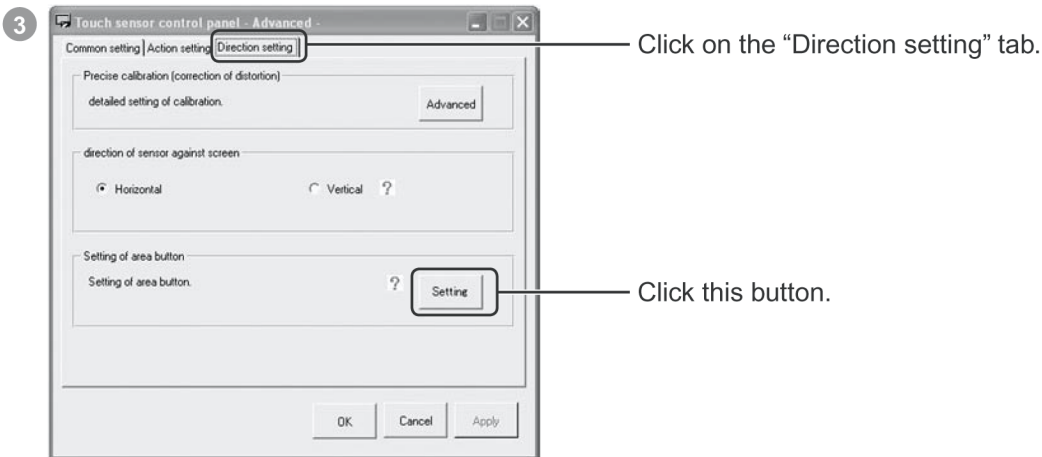
The Area button setting window opens.

- In a multiple monitor environment, select the touch panel where wanting to create area buttons from the drop-down list. For touch panel registration procedures, see "Multiple Monitor Setup".
- In a single monitor environment, select "Common setting" in the drop-down list before making the setting.
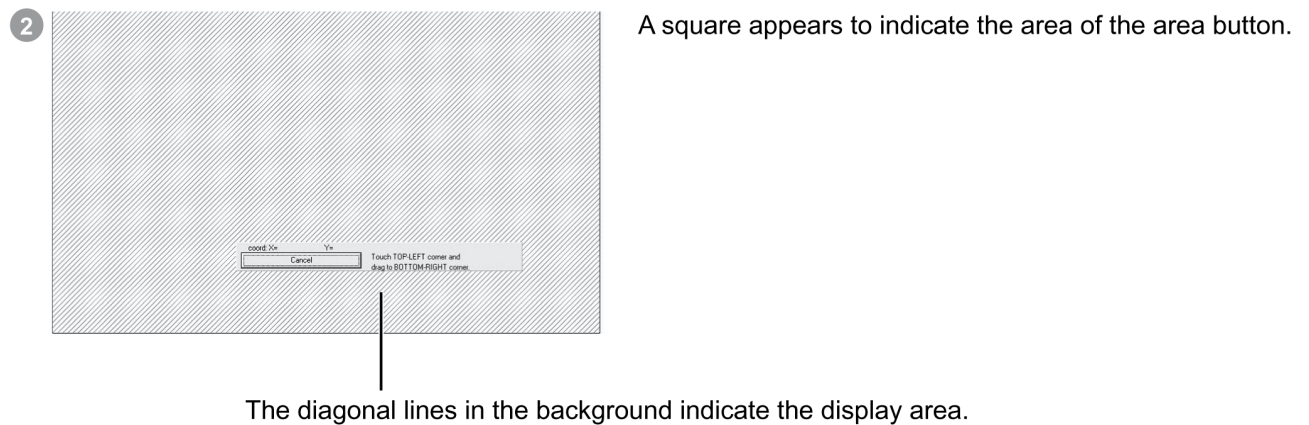
## Adding (Creating) Area Buttons

Up to 30 area buttons can be created.

 — Click this button.

Touch the location where wanting to create an area button and drag the pen.

 A square appears to indicate the area of the area button.

The diagonal lines in the background indicate the display area.

When you remove the touch pen from the display, Area button function dialog box opens.

③ Assign an operation to the created area.
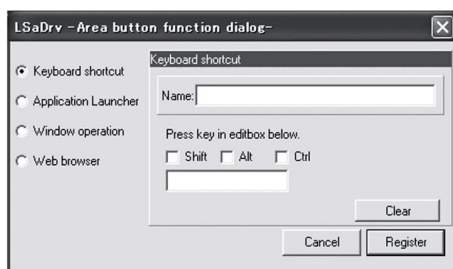
Keyboard shortcut:
Single letter keys can be assigned to area buttons.
Applicable keys are the alphanumeric keys and function keys. However, lower case and upper case letters cannot be differentiated.
① Input the name of the shortcut.
② Place a checkmark in the Shift , Alt and Ctrl checkboxes as necessary.
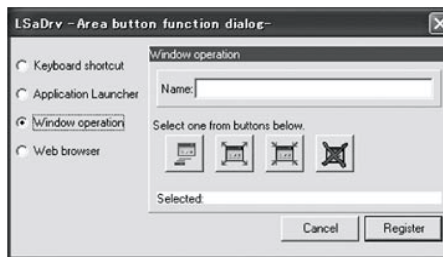③ Input the letter to assign to the area button.
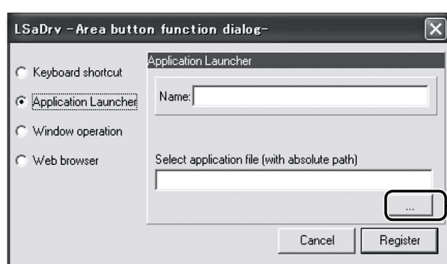
Application Launcher:
Applications can be assigned to area buttons.
① Input the name of the launcher.
② Click on the [ ] (browse) button and select the application (The path to the application can be directly input, as well.).
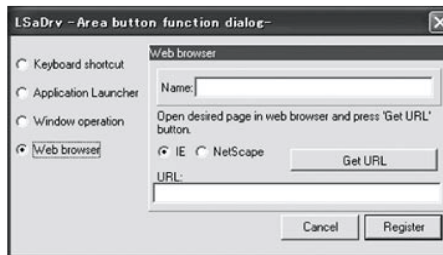
Touch Panel Setup

Window operation:
Windows sizes and the application quit command can be assigned to area buttons.
① Input the name of the window operation.
② Select either "Minimize Window", "Maximize Window", "Restore the Size of Window" or "Exit Application".

Web browser:
Area buttons can be created to open Internet Explorer or NetScape in a specific URL.
① Start up Internet Explorer or NetScape.
② Input the name of the browser operation.
③ Select either "IE" or "NetScape".
④ Click on the "Get URL" button to acquire the current UR L of Internet Explorer or NetScape.

④ Click on the "Register" button.
The saved settings are added to the Area button list.

⑤
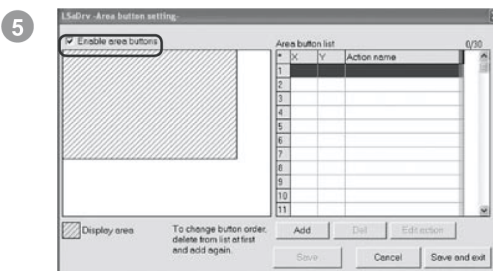
Select the "Enable area buttons" checkbox.
Click on the "Save" or "Save and exit" button.

• Editing Area Buttons

1 Select the setup to change from the "Area button list".
2 Click on the "Edit action" button.
The Area button function dialog box opens.
3 Change the setup and click on the "Register" button.
4 Click on the "Save" or "Save and exit" button.

• Deleting Area Buttons

1 Select the setup to delete from the "Area button list".
2 Click on the "Del" button.
3 Click on the "Save" or "Save and exit" button.

• Inactivating Area Buttons

1 Remove the checkmark from the "Enable area buttons" checkbox.
2 Click on the "Save" or "Save and exit" button.

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Touch Panel Setup

Multiple Monitor Setup

Multiple plasma displays can be connected to the same computer, fitted with touch panels and used accordingly.

■ Notes on Connecting Multiple Touch Panels

Monitor No.

The monitor Nos. set in Windows are used when registering the touch panels.

• Checking Monitor Nos.

① Open the Control Panel from the Start menu.

② Click on "Display".

③ Click on the "Settings" tab.

④ Click this button.
Monitor Nos. appear in each of the monitor icons.

Restrictions on changing monitor resolution and positioning when using multiple monitors

If the monitor resolution or monitor coordinates are changed after calibrating the monitor, the calibrated coordinates shift out of place.
To change the resolution or positioning, restart the computer.

USB Bandwidth Error

An error message similar to that at right may appear when connecting multiple touch panels.

It occurs when the total bandwidth secured by USB devices to send data over USB exceeds the available bandwidth of the USB.
In such case, free up the necessary bandwidth by methods such as connecting the touch panels to another USB host controller and disconnecting USB devices that are not being used.

Changing Monitor Nos. of Registered Touch Panels

To change monitor Nos. of registered touch panels after disconnecting supported monitors and reconnecting new ones, either reregister the touch panel or cancel the registration.

Touch Panel Setup

■ Registering Touch Panels

1 Start up the setup panel.

2 Place a checkmark in the "Using Multi-monitor" checkbox on the "Basic setting" tab.
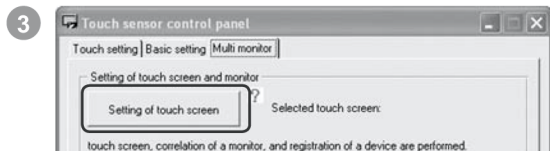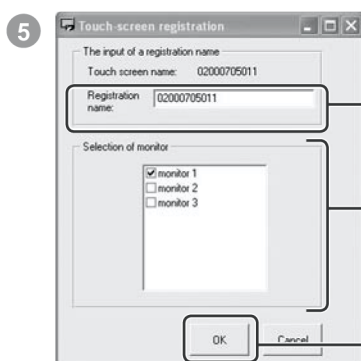
3   Click on the "Setting of touch screen" button on the "Multi monitor" tab.

 When the window at left appears, touch the touch panel you want to register.

4 Check that the touch panel you touched is selected in the list and click on the "Regist" button.
The Touch-screen registration window opens.

5

Edit the registration name.

Select a monitor No. to assign to the selected touch panel. The monitor Nos. are the same Nos. detected by the computer.

Click on the "OK" button.
The setup panel returns.
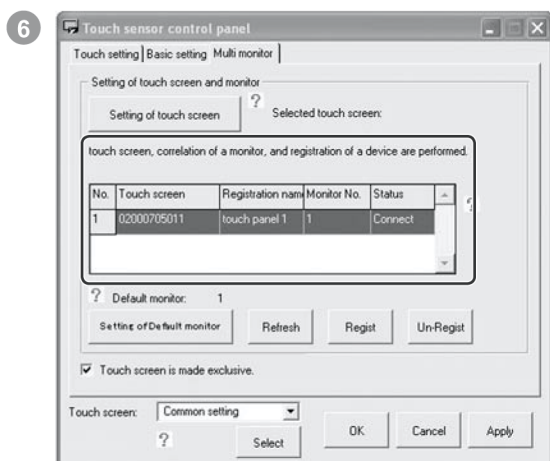
6   Check that the edited name and monitor No. appear on the touch panel list, and click on the "OK" or "Apply" button.

• Register all connected touch panels in the same way.

Touch Panel Setup

■ Calibrating Touch Panels

Once registered, touch panels can be calibrated to their respective plasma displays.

1 Start up the setup panel.

2 Select the touch panel to calibrate from the "Touch screen" pull-down menu.
  • Clicking on the "Select" button and touching a touch panel automatically selects that panel.
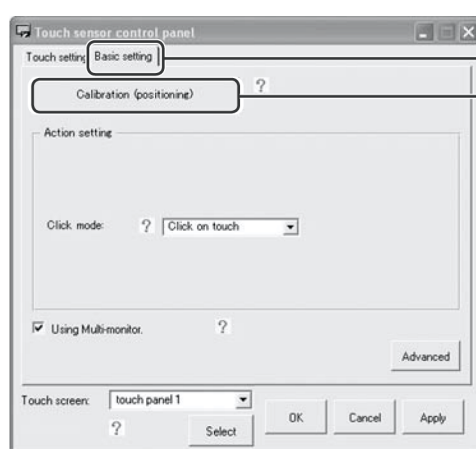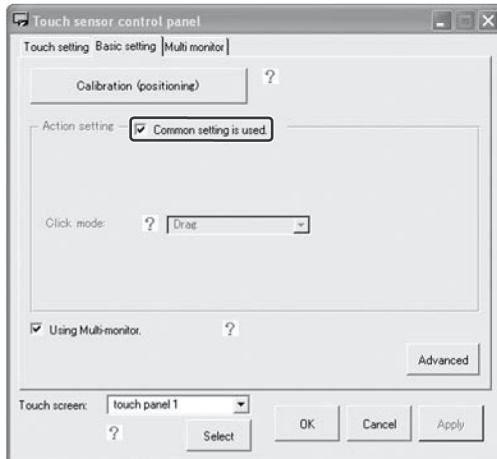
3 Click on the "Basic setting" tab.

4 Click this button.
The calibration window opens.

5 Make settings.

Touch Panel Setup

■ Setting Up Touch Panels

1 Start up the setup panel.

2 Select the touch panel to set up from the "Touch screen" pull-down menu.

3 Make settings.

Note

"Common setting is used" Checkbox:
This command uses the setup selected as "Common setting" in the "Touch screen" drop-down list. When the "Common setting is used" checkbox is selected, it is unnecessary to make settings when individual settings are not needed.

4 Click on the "OK" or "Apply" button.
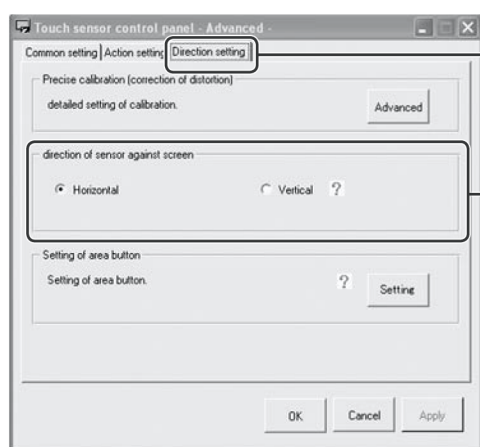   Settings are applied.

Touch Panel Setup

Setting Sensor Position

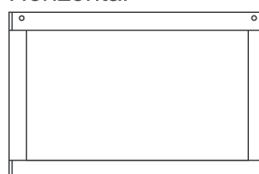Set the sensor position of the touch panel so that it corresponds to the position of the display.
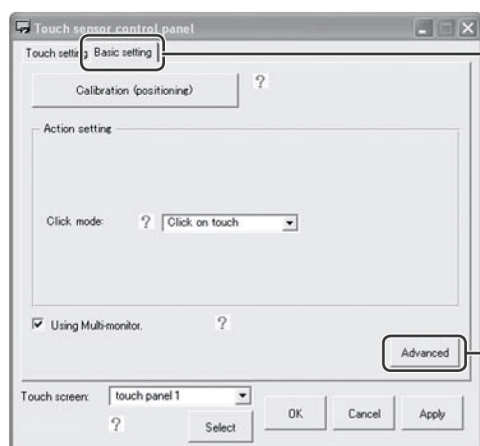
1 Start up the setup panel.

2 Click on the "Basic setting" tab.
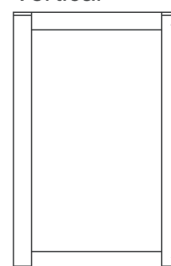
3 Click this button.

4 Click on the "Direction setting" tab.

5 Select the sensor position for the plasma display.

Horizontal   Vertical

Note

If the touch panel is rotated before the sensor position is set, the touch direction and the direction in which the cursor moves will differ. Set the sensor position before rotating and using the touch panel.
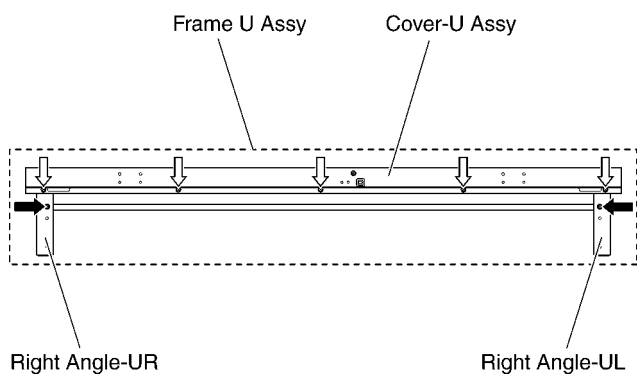
5 Disassembly and Assembly Instructions

5.1. Remove the Frame U Assy

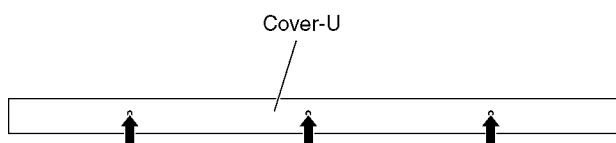1. Remove the screws (×2 ➡️ each).
2. Remove the Frame U-Assy.

Frame U Assy   Frame U Assy

Right Angle-UR   Right Angle-UL
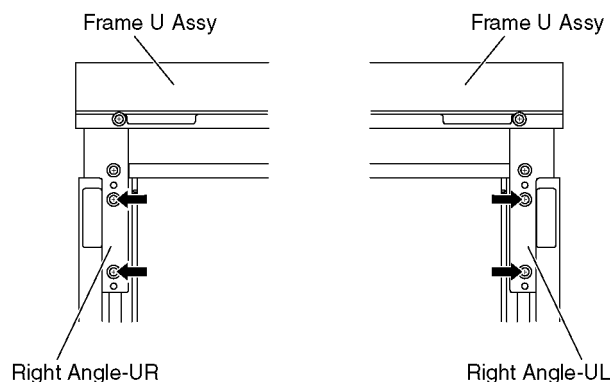
5.2. Remove the Cover-U Assy

1. Remove the screws (×2 ➡️).
2. Remove the screws (×5 ⇨).

Frame U Assy   Cover-U Assy

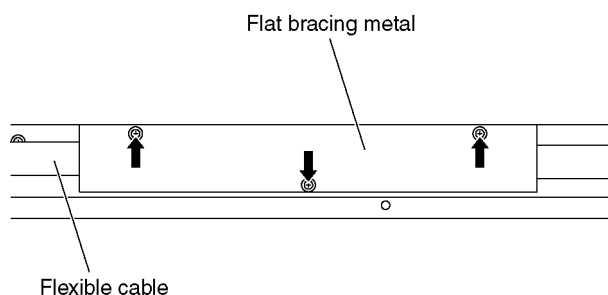Right Angle-UR   Right Angle-UL

3. Remove the screws (×3 ➡️) and remove the Cover-U Assy.

Cover-U

5.3. Remove the Flat bracing metal

1. Remove the screws (×6 ➡️) and remove the Flat bracing metal (R, L).
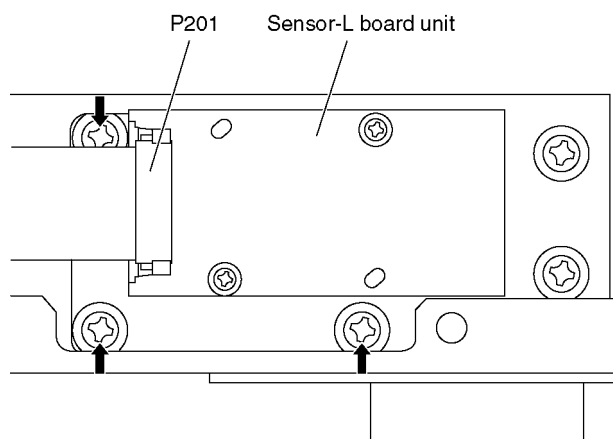

Flat bracing metal

Flexible cable

5.4. Remove the Main board unit

1. Remove the screws (×2 ➡️).
2. Disconnect the flexible cables (P2 and P5) and remove the Main board unit.

P5   Main board unit   P2
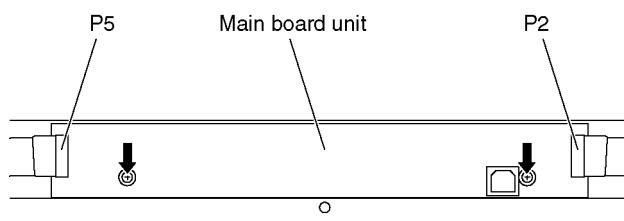
5.5. Remove the Sensor-L board unit

1. Remove the screws (×3 ➡️).
2. Disconnect the flexible cable (P201) and remove the Sensor-L board unit.
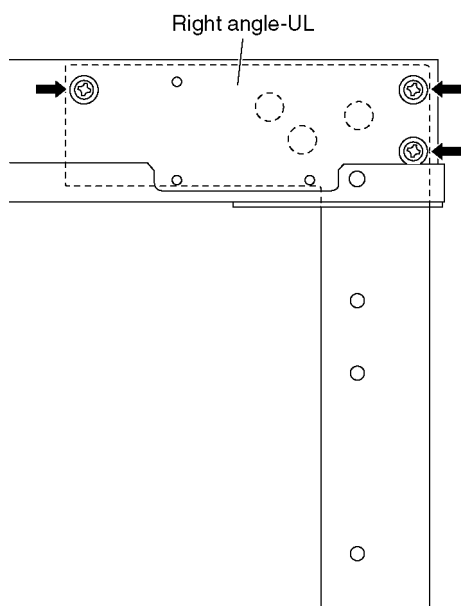

P201   Sensor-L board unit

5.6. Remove the Sensor-R board unit

1. Remove the screws (×3 ➡️).
2. Disconnect the flexible cable (P301) and remove the Sensor-R board unit.

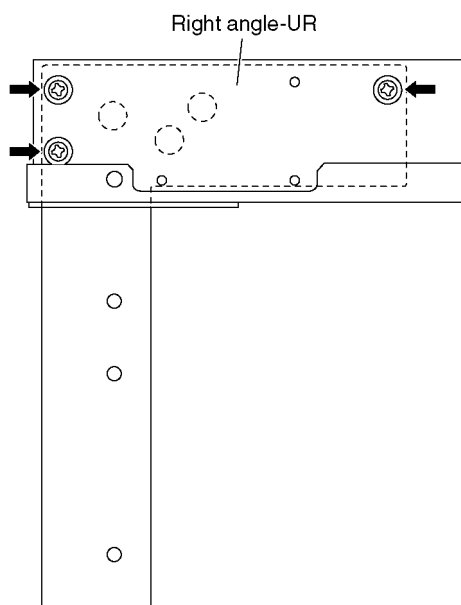Sensor-R board unit   P301
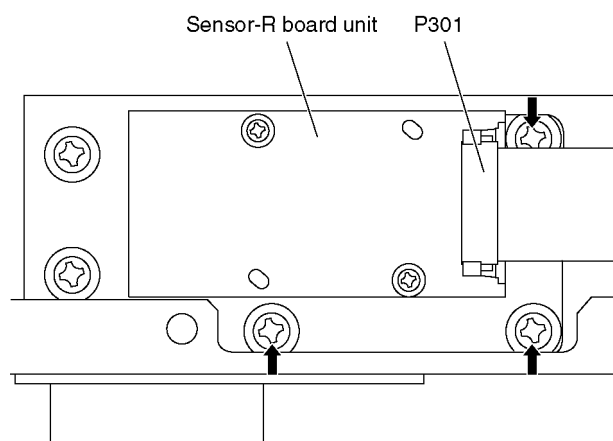
5.7. Remove the Right angle-UL

1. Remove the screws (×3 ➡) and remove the Right angle-UL.

Right angle-UL

5.8. Remove the Right angle-UR

1. Remove the screws (×3 ➡) and remove the Right angle-UR.
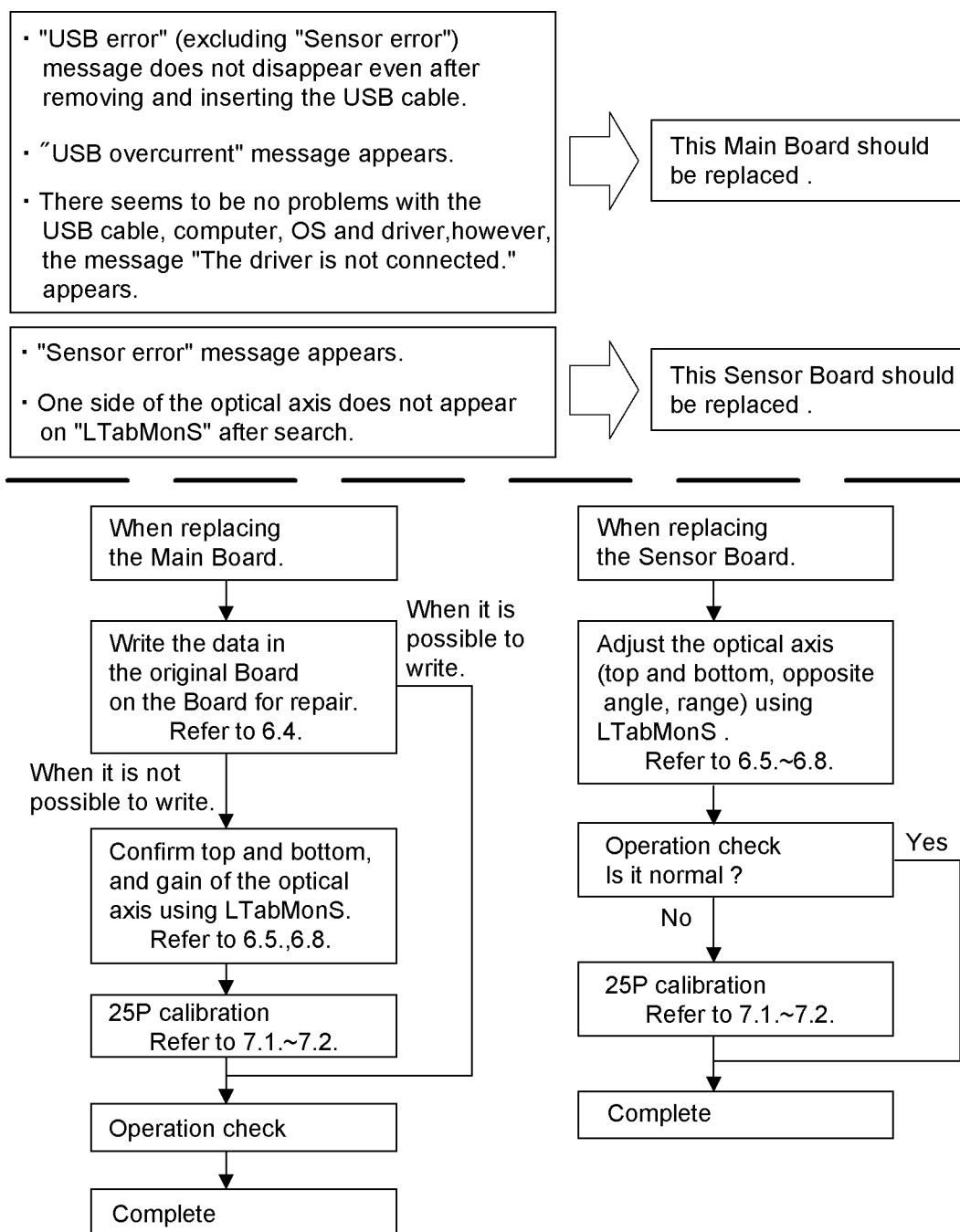
Right angle-UR

6 Measurements and Adjustments

6.1. Before the adjustment when Circuit board are exchanged

- The maintenance tools, "LTabMonS" and "25P Adjustment Data Processing" are necessary.
  Click here for downloading the maintenance software "LTabMonS" and "25P Adjustment Data Processing".
- Defrost downloaded "maintenance.zip", and use "LTabMonS" after copying "LTabMonS.exe" and "LTabMonS.ini" to the folder "C:\Program Files\LSaDrv".
- Install the latest version of Touch Panel driver to "C:\Program Files\LSaDrv folder" beforehand.
- Copy downloaded the folder "25P Adjustment Data Processing" onto the C Drive.

6.2. Cautions for replacing the Circuit board

- The image sensor for image recognition, and optical components such as lens, prism, etc are used for the sensor Board (L, R).
- Avoid as much dust as possible. Do not touch the lens, prism or infrared diode. Handle with care not to add impacts, etc.

6.3. Flow chart for replacing the Boards

```
· "USB error" (excluding "Sensor error")
  message does not disappear even after
  removing and inserting the USB cable.

· "USB overcurrent" message appears.          ⇒   This Main Board should
                                                   be replaced .
· There seems to be no problems with the
  USB cable, computer, OS and driver,however,
  the message "The driver is not connected."
  appears.
```

```
· "Sensor error" message appears.
                                              ⇒   This Sensor Board should
· One side of the optical axis does not appear     be replaced .
  on "LTabMonS" after search.
```

```
When replacing                                  When replacing
the Main Board.                                  the Sensor Board.
      ↓                     When it is                 ↓
Write the data in          possible to         Adjust the optical axis
the original Board         write.              (top and bottom, opposite
on the Board for repair.                        angle, range) using
      Refer to 6.4.                            LTabMonS .
When it is not                                      Refer to 6.5.~6.8.
possible to write. ↓                                  ↓
Confirm top and bottom,                        Operation check        Yes
and gain of the optical                        Is it normal ?
axis using LTabMonS.                                  ↓ No
      Refer to 6.5.,6.8.                        25P calibration
      ↓                                              Refer to 7.1.~7.2.
25P calibration                                       ↓
      Refer to 7.1.~7.2.                        Complete
      ↓
Operation check
      ↓
Complete
```
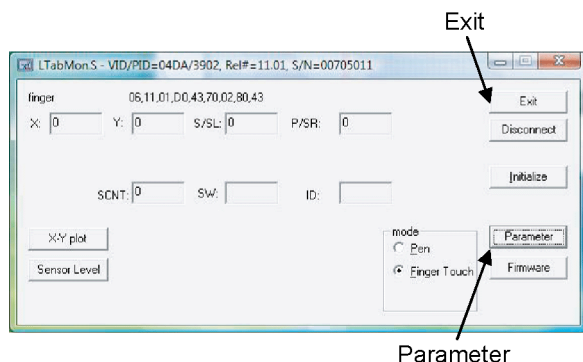
6.4. How to rewrite data when replacing the Main Board

• Adjusted data is saved respectively in EEPROM inside the Main Board.

  1. Start "LTabMonS" with Touch Panel connected.
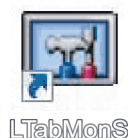
  2. Press "Parameter" after start "LTabMonS".

Exit

Parameter

 3. Parameter display appears. (The data of the Main Board currently connected is shown.)

  4. Press "Save File" button and save as "Name". (extension. prm)

  5. Write the data saved according to procedure 4 on the Board for repair after replacing.

• Press "Load file" and specify the data saved as above procedure 4. (extension. prm)

• The data which was read is displayed. When the data cannot be saved, replace the Main Board to the board for repair, then follow "6.5. Adjust the optical axis" to "6.8. Adjust and confirm the light level".

• Press "Write to ROM" and the data is written on the Board for repair. (Unless you push the button, the data cannot be written.)

• Press "OK" to close "Parameter" display.

• After writing the data, finish "LTabMonS".

• The written data is enabled by removing and inserting the USB cable.

The data of the Main Board currently connected is shown.

Initialize   Write to ROM   Load   Save
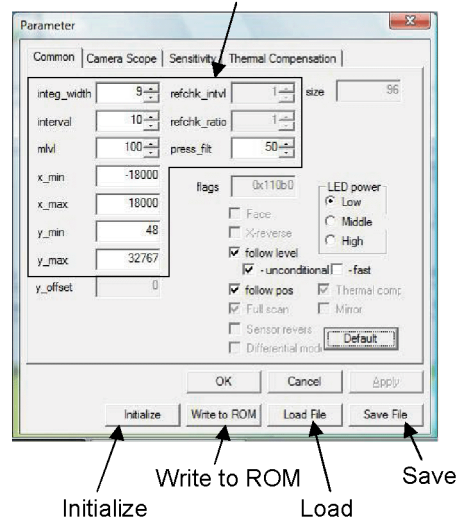
• The basic operation for replacing the Main Board finishes here. Confirm the operation of the Touch Panel.

• Some components come to the end of life and may not be recovered to the shipping condition.

• If the check contents cannot be satisfied, adjust the items. If it still cannot be recovered after adjusting all items, changing the Sensor Boards is necessary.

6.5. Adjust the optical axis

• Purpose for adjustment : Adjusting so that L and R sensors can receive the reflected light properly from the reflecting plate.
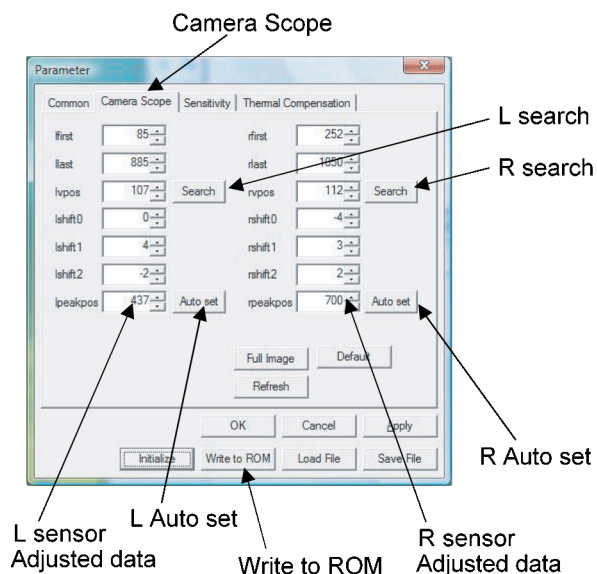
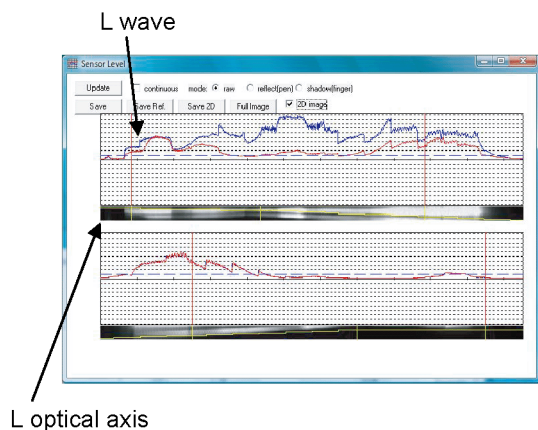 1. Start "LTabMonS" with Touch Panel connected.
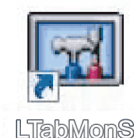
  2. After starting "LTabMonS". the sensor wave pattern appears. Add check mark for "Continuous" and "2D image".

Sensor level   Continuous   2D image

3. Display "Parameter" and select view "Camera Scope" tab.

Camera Scope

L search
R search
R Auto set
L sensor Adjusted data
L Auto set
Write to ROM
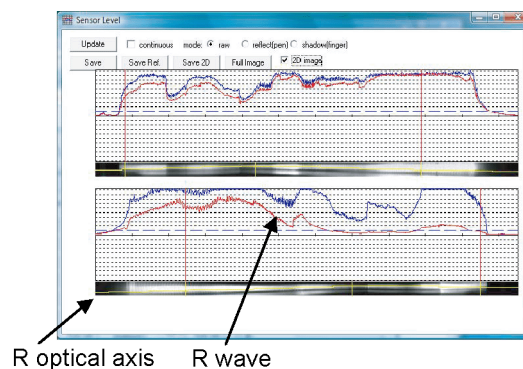R sensor Adjusted data

4. Press "L Search". It will take time to search for the optical axis.

L wave

L optical axis

5. When the wave shape is swollen, press "Auto set". The wave shape is more swollen and then L optical axis adjustment is complete.

L wave
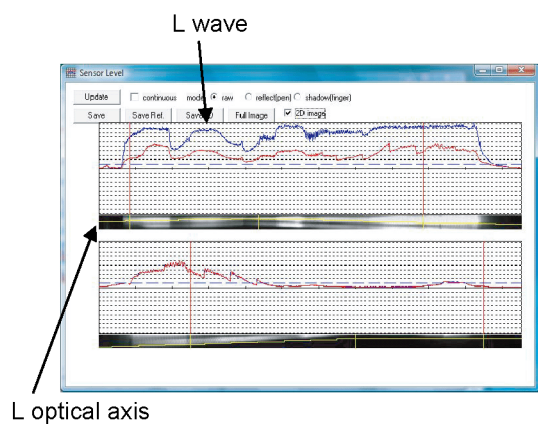
L optical axis

6. Press "R Search". It will take time to search for the optical axis.

R optical axis   R wave

7. When the wave shape is swollen, press "Auto set". The wave shape is more swollen and then R optical axis adjustment is complete.

R optical axis   R wave
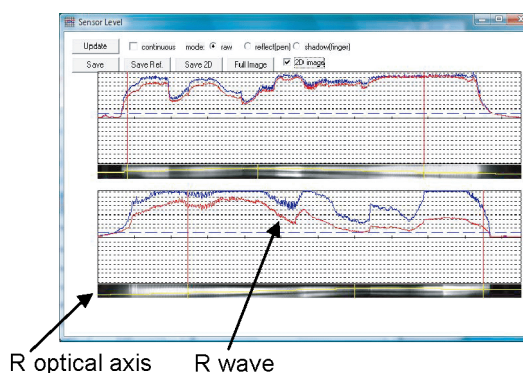
8. Press " Write to ROM " to save the adjusted data which was completed. "Writing parameter" display appears. Press "OK".
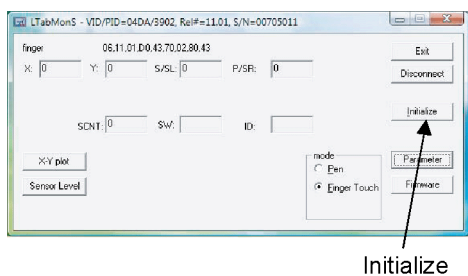
Writing Parameter

OK
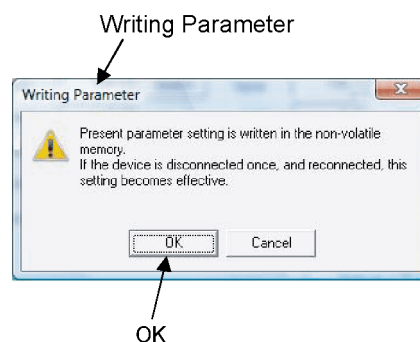
9. Writing (Saving) the adjusted data is complete by pressing "OK".
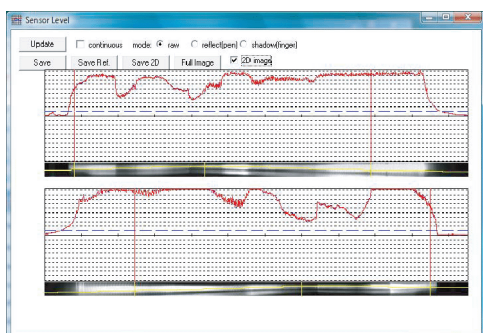

OK
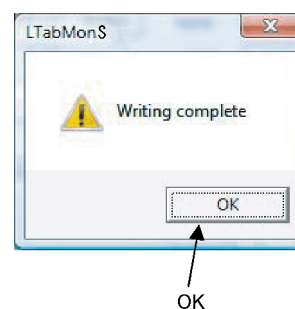
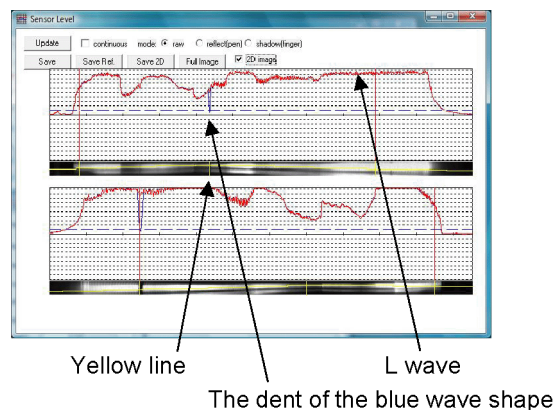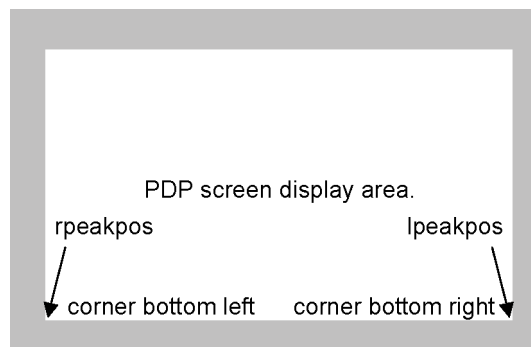10. Press "OK" to close the window of Parameter.

11. Press "Initialize".

Initialize

• Both red and blue wave shapes match with each other. The red wave shape is set during start-up and initialization with basic light level. The blue wave shape shows the operation in progress.

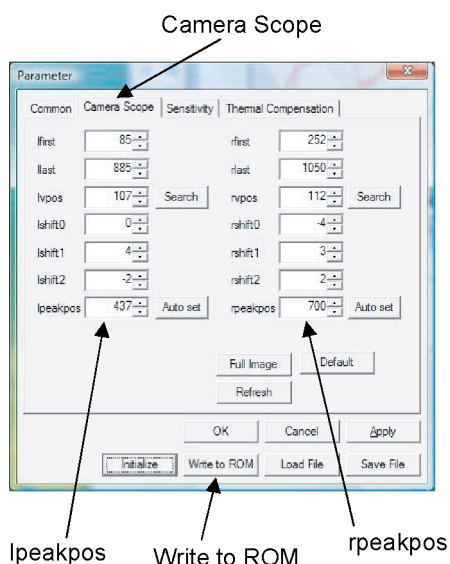• Adjustment from here can be made with this wave shape condition.

6.6.   Adjust PEAKPOSI (Corner)

• Purpose for adjustment : Make Touch Panel recognize the corners bottom left and right.

  1. Display Parameter and select "Camera Scope" tab.

Camera Scope


lpeakpos   Write to ROM   rpeakpos

2. Touch the corner bottom right of PDP screen display area.

 • Touch with a bar such as Touch Pen to indicate the correct position. The blue wave shape at the corner bottom right falls down.

 • If lpeakpos value is changed, the yellow line in the reflection plate image moves to left and right. Adjust lpeakpos and match the position to the dent of the blue wave shape.

• As the reflection plate looks black at the touched point, matching yellow line is better to adjust correctly.

PDP screen display area.

rpeakpos   lpeakpos

corner bottom left   corner bottom right

Yellow line   L wave

The dent of the blue wave shape

3. Touch the corner bottom left of PDP screen display area.

 • Touch with a bar such as Touch Pen to indicate the correct position. The blue wave shape at the corner bottom left falls down.

 • If rpeakpos value is changed, the yellow line in the reflection plate image moves to left and right. Adjust rpeakpos and match the position to the dent of the blue wave shape.

 • As the reflection plate looks black at the touched point, matching yellow line is better to adjust correctly.
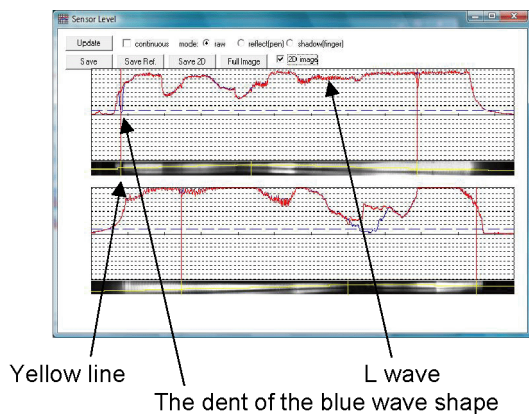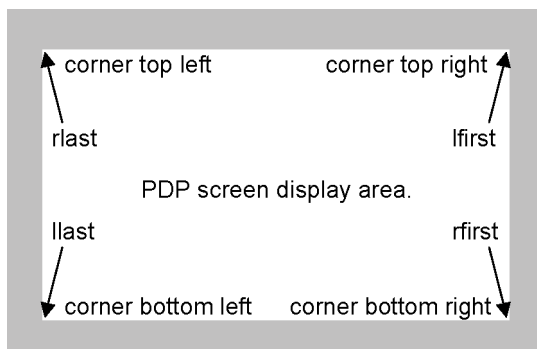

R wave   Yellow line   The dent of the blue wave shape
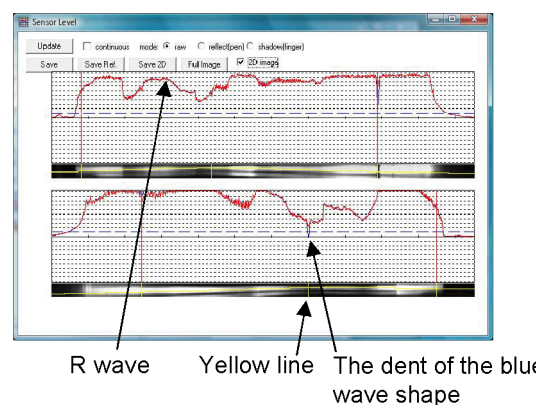
4. Press "Write to ROM" to write the adjustment result.

## 6.7. Setting range (first, last) of the optical axis

• Purpose for adjustment : Make L and R sensors recognize the starting point (first) and ending point (last). Adjust lfirst, rfirst, llast and rlast
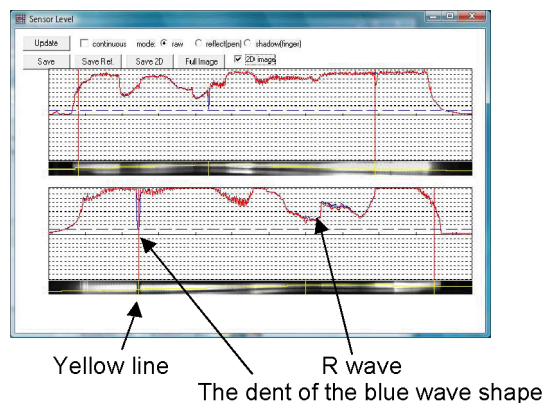

Write to ROM
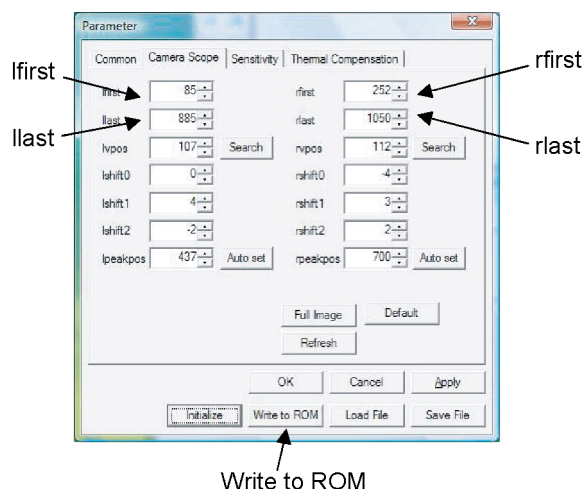
1. Touch PDP display area corner top right. The blue wave shape of the left sensor falls down. Adjust lfirst and match the yellow line to the dent of the wave shape.

corner top left   corner top right

rlast   lfirst

PDP screen display area.

llast   rfirst

corner bottom left   corner bottom right

Yellow line   L wave
The dent of the blue wave shape

2. Touch PDP display area corner bottom left. The blue wave shape of the left sensor falls down. Adjust llast and match the yellow line to the dent of the wave shape. (*If two dents appear, pick the one close to the center of the wave)

L wave   Yellow line   The dent of the
                                            blue wave shape
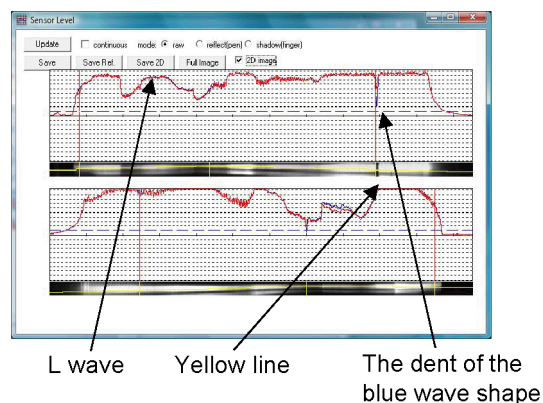
3. Touch PDP display area corner bottom right. The blue wave shape of the right sensor falls down. Adjust rfirst and match the yellow line to the dent of the wave shape. (*If two dents appear, pick the one close to the center of the wave)

Yellow line   R wave
                The dent of the blue wave shape

4. Touch PDP display area corner top right. The blue wave shape of the right sensor falls down. Adjust rlast and match the yellow line to the dent of the wave shape.


R wave   Yellow line
The dent of the blue wave shape
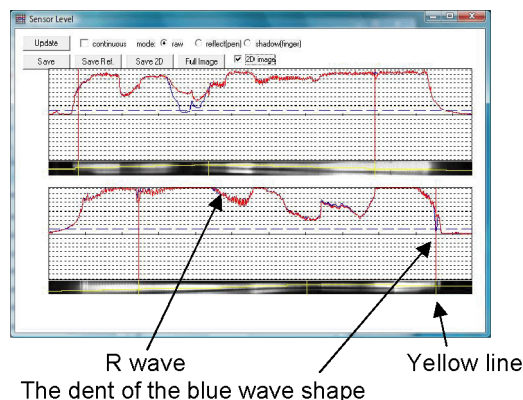
5. Press "Write to ROM" to write the adjustment result.

6.8. Adjust and confirm the light level

• Purpose for adjustment : Confirm that the enough light level to operate Touch Panel properly is secured.
  1. Press "Auto set" at left and right.
  2. Press "Initialize" after press "Write to ROM" to save the data.

Auto set

Initialize   Write to ROM
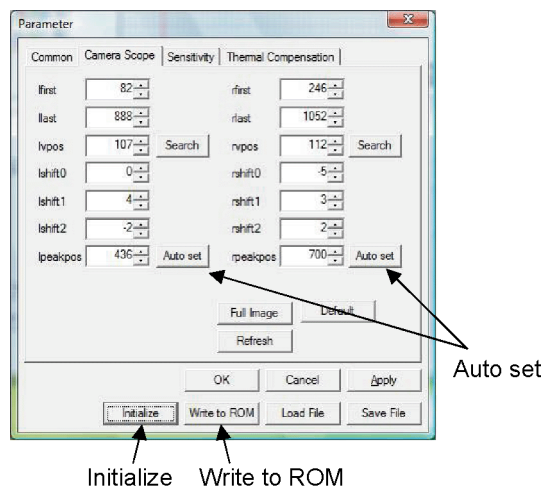
3. Confirm that the weakest point of left and right wave shape (light level) is level 2.5 or more.
   The scale of the sensor wave shape is 10 levels as a whole.
   The L wave shape is about 3.5 levels, the R wave shape is about 3.2 levels for the figure below. (Refer to the expansion display)
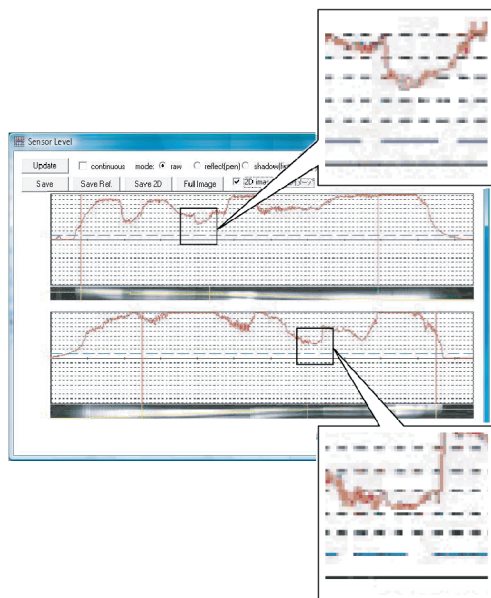
• If dust exists on the sensor unit or reflection plate, necessary light level may not be secured. Clean the reflection plate and the floodlight lens of the sensor part.
 **[Cleaning of the sensor part]**
  - Place the touch panel that the sensor part comes the bottom.
  - Clean the 2 flood light lenses and the prism in the middle.
    Rub the 2 flood light lenses and the prism gently, using

wet cotton bud with water or 30% alcohol solution.
  [Attention]
  - Do not drop water or alcohol solution inside the sensor part.
    *Squeeze well the moisture of the cotton bud.
  - The flood light lenses and the prism are made of acrylic plastic.
  - Scratches on the surface and using chemicals except alcohol drop performance.

• If the weakest point is below 2.5, set "LED power" current to "High" by opening "Common" tab in Parameter.

Common tab
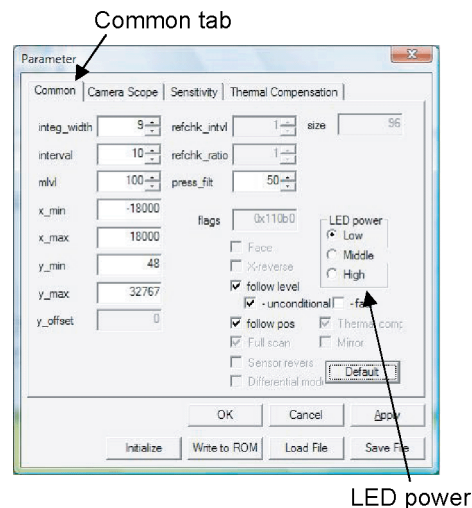
LED power

• If the weakest point is still below 2.5 although setting "LED power" current to "High", open "Sensitivity" tab in "Parameter" to adjust the sensor sensitivity.
  *Adjust the lowest point of the wave shape to 3 levels.
• If you set the wave shape to too high level more than necessary, thin things cannot be recognized. When confirming the thinnest value detection, NG will appear.
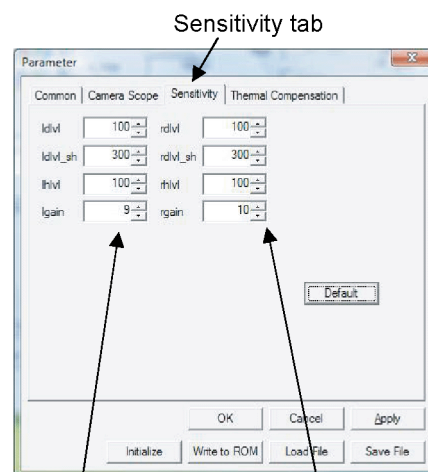
Sensitivity tab

L sensor sensitivity   R sensor sensitivity

*Press "Write to ROM" when you adjust the sensor sensitivity.

7 25-point calibration

Perform 25-point calibration after adjusting the optical axis using "LTabMonS".

## 7.1. Prepare setting for adjusting PC

1. Set the resolution of the PC screen to 1024 × 768.
2. Create a folder directly onto the C Drive for Excel data processing. C:/25P Adjustment Data Processing
3. There are the files listed below into the "25P Adjustment Data Processing".
   • 25P Adjustment Data Processing.xls
   • Grid.exe
   • grid.ini
   • import.prm
   • data (folder)
      - Adjustment processing result will be saved in the data folder automatically ("S/N" xls).

7.2. Explanation of 25-point Calibration

1. To start performing 25-point Calibration
   • Start up "LTabMonS".
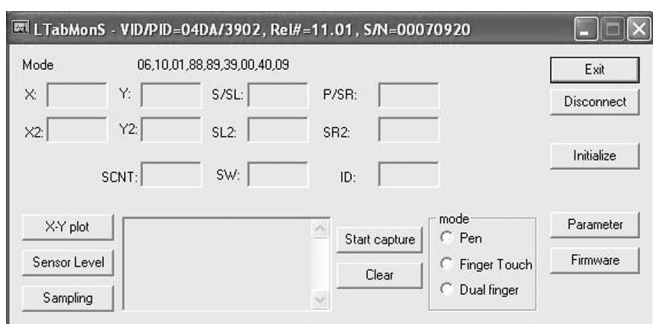
   a. Press "Sampling". Detailed sampling data box will appear.
   b. Start up "Grid.exe".
      • About the resolution of the screen.
      - The grid has been matched to XGA resolution. Display it on the screen of XGA (1024 × 768).
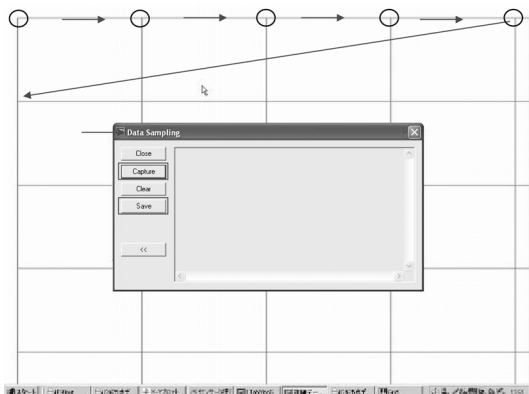
   • While touching the cross point in the top left corner with the touch pen, press "Capture (Enter Key)".
   • Move to right one section and press "Capture (Enter key)". Repeat the same procedure to get calibration data from 5 points.

   • Move to far left corner in the second row, repeat the same procedure from left to right to get calibration data. Collect data from all 25 points.
   • When you finish with the last point, press "Save", and RES.dat will be saved in "25P Adjustment Data Processing" folder in C drive.
   • Right-click to close "Grid".
   • Close "Data Sampling" and "LTabMonS".

2. Excel data processing (Make sure the setting has been prepared before hand.)
   a. Start up "25P Adjustment Data Procssing.xls" (Macro).
      • Prepare setting of Excel.
      - Start up the Visual Basic Editor by selecting "Tools" - "Macro" -> "Visual Basic Editor".
      - Select "Reference Setting" from "Tool".
      - Put a check mark on "SOLVER" in available references.
      - If "SOLVER.xla" doesn't exist or does not show in references, press "reference" to select "SOLVER.xla". "SOLVER.xla" should be in C:\Program Files\Microsoft Office\Library\Solver, or C:\Program Files\Microsoft Office\OFFICE11\Library\SOLVER.
      - Close "Visual Basic Editor".
      - Select "Add-Ins" from "Tools" and put check marks on "Solver Add-in", "Analysis ToolPak" and "Analysis ToolPak-VBA" on "Add-Ins available" list, then click "OK".
      • Select a number for adjusting model.
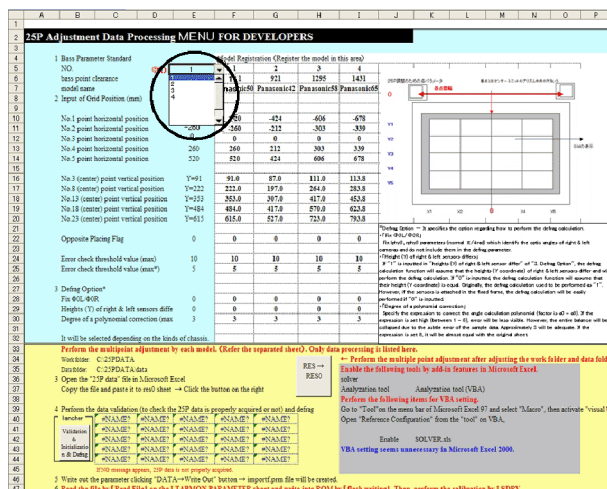
      Select a number of an adjusting model from the drop-down menu circled on the figure.
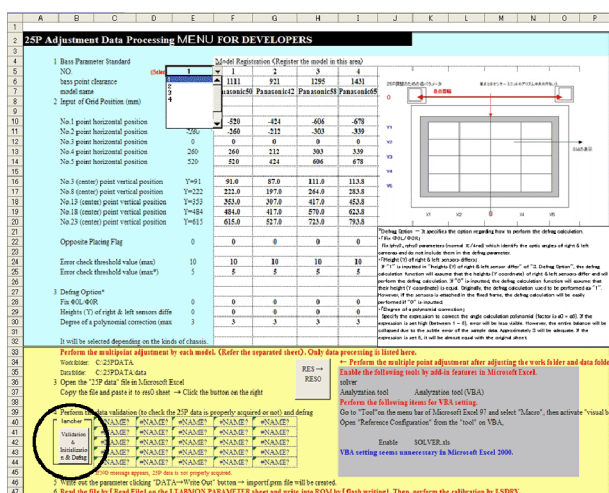   - 1:50 inch   TY-TP50P10S
      - 2:42 inch TY-TP42P10S
      - 3:58 inch TY-TP58P10S
      - 4:65 inch TY-TP65P10S

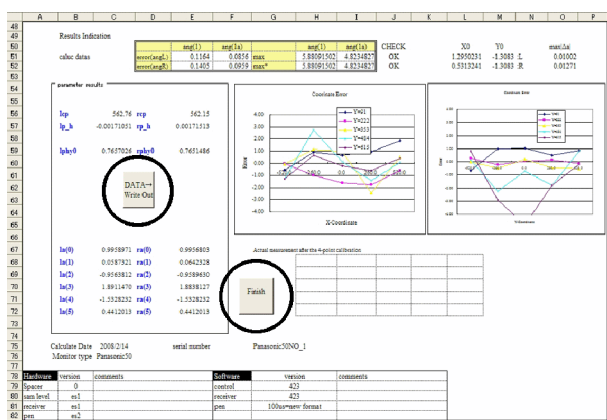b. Process the acquired data. Press "RES - RES0"
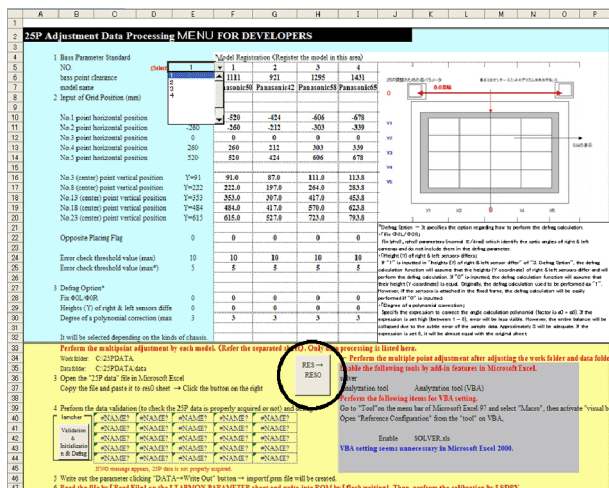
c. Press "OK" according to the message dialog box.

d. Press "Validation & Initialization & Defrag", and press "OK" according to the message dialog box.

*When the setting of 25-point calibration is not conformed, error message appears. Then follow "To start performing 25-point calibration" again.
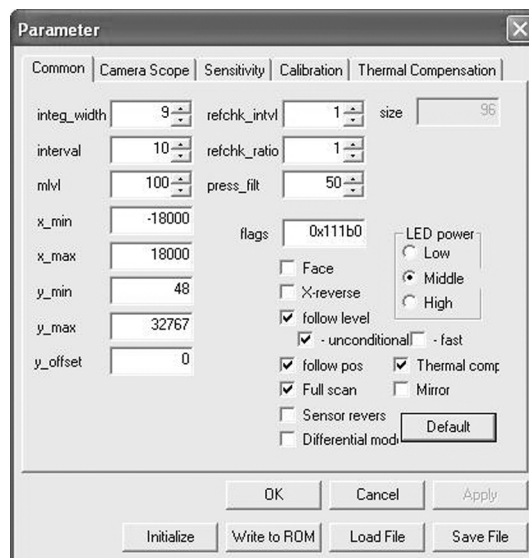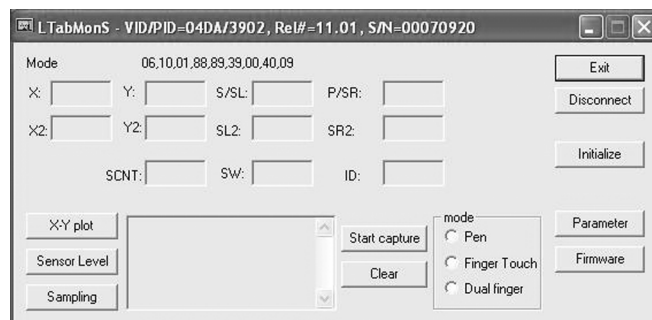
e. Press "DATA - Export" to save result of the calibration.

• The data will be saved as "importf.prm" in "25P Adjustment Data Processing" folder.
• Press "Exit" to quit.
• Enter product's serial number when asked for S/N.
• "S/N.xls" will be saved in "25P Adjustment Data Processing" folder.
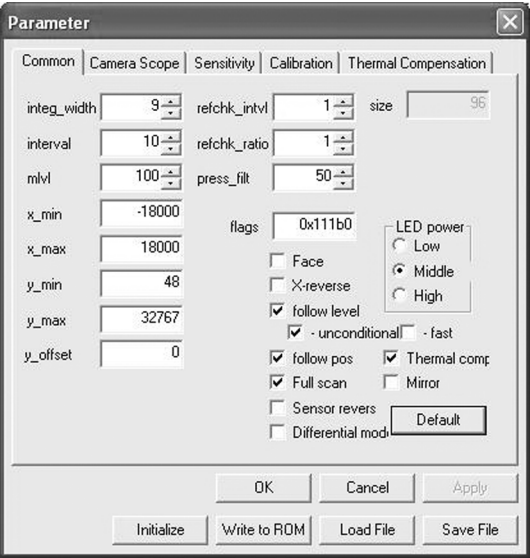
3. Import the acquired data.
   a. Press "Parameter" in LTabMonS.

b. Press "Load File" to open "importf.prm" file saved in "25P Adjustment Data Processing" folder.
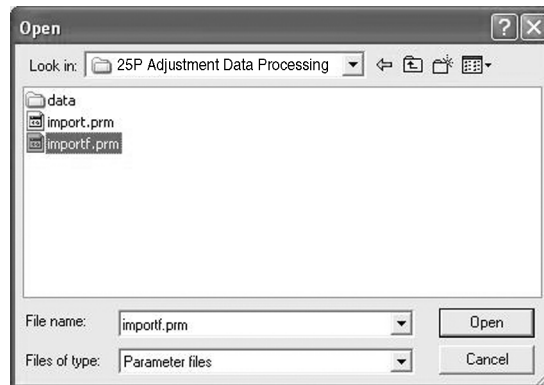
c. The result will be imported and reflect to each parameter.

- Press "Write to ROM" to write.
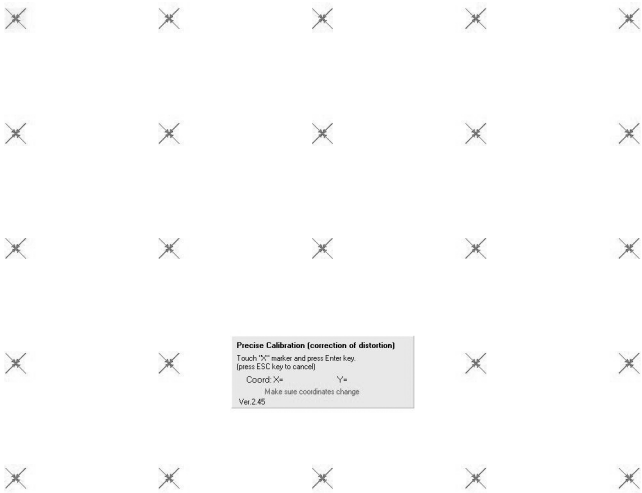- Exit "LTabMonS" to finish.

7.2.1. Precise calibration

1. Adjusting method.
   a. Make sure the LTabMonS is not running. Start up the "Touch Driver".
   b. Start "LSaDrv Driver".
   c. Select "Basic setting".
   d. Press "Advanced" button.
   e. Select the tab "Direction setting" and press "Advanced" button.
   f. Press "precise calibration" button.
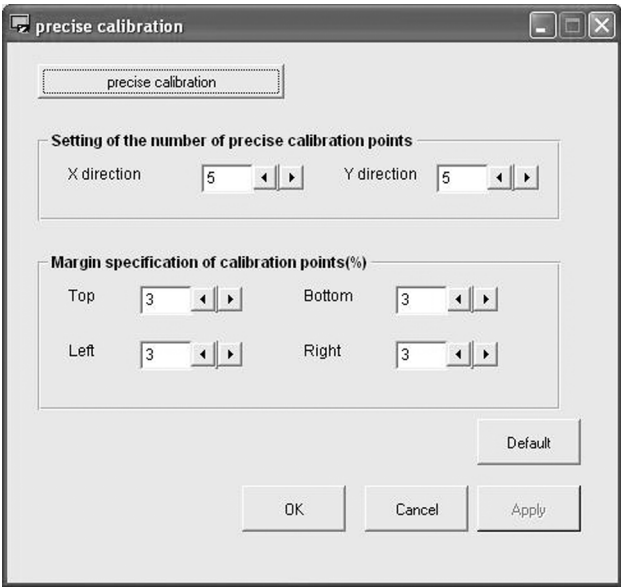
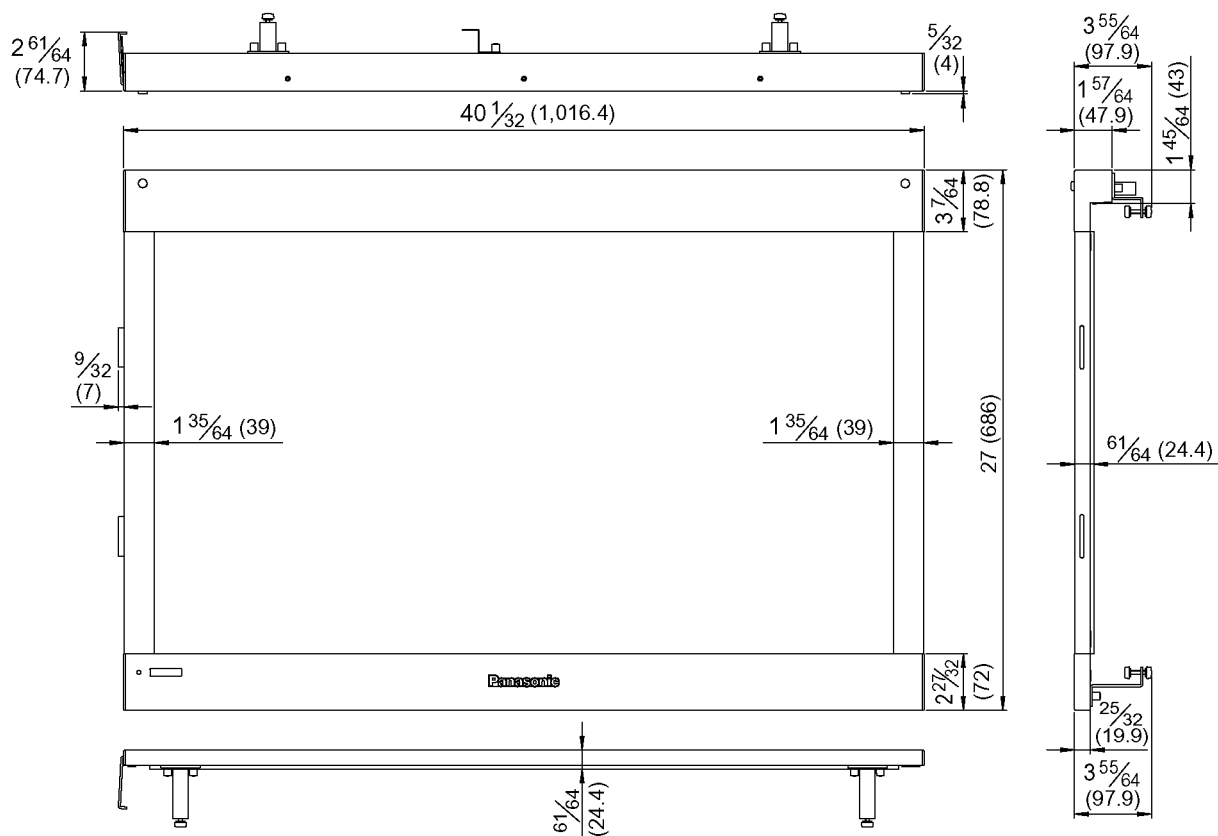"precise calibration" dialog box will appear.
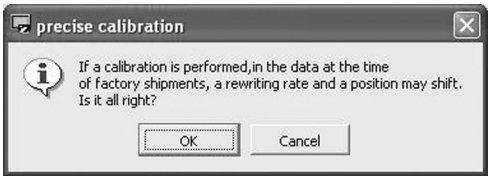
g. Press "OK".

h. Touch the "X" marker in the top right corner (shown in yellow) with the touch pen, and wait.
   - When the driver capture XY coordinates, the yellow "X" marker moves one to right. (The remainder second to capture is displayed.)
   - Capture XY coordinate for each "X" marker shown in yellow. Get data from all 25 points.
   i. When you finish collecting data from all points, the calibration result will be asked. Then press "OK" to exit.
2. Check for the calibrating result (test)
   a. Exit "LSaDrv Driver", and touch any marker to test.
   - Point positions should not be too far off. It should be within 5 mm.
   - In order to test, set the setting to 0 (zero) in the "Allowance for point position differences" in the setup panel of Touch Driver.
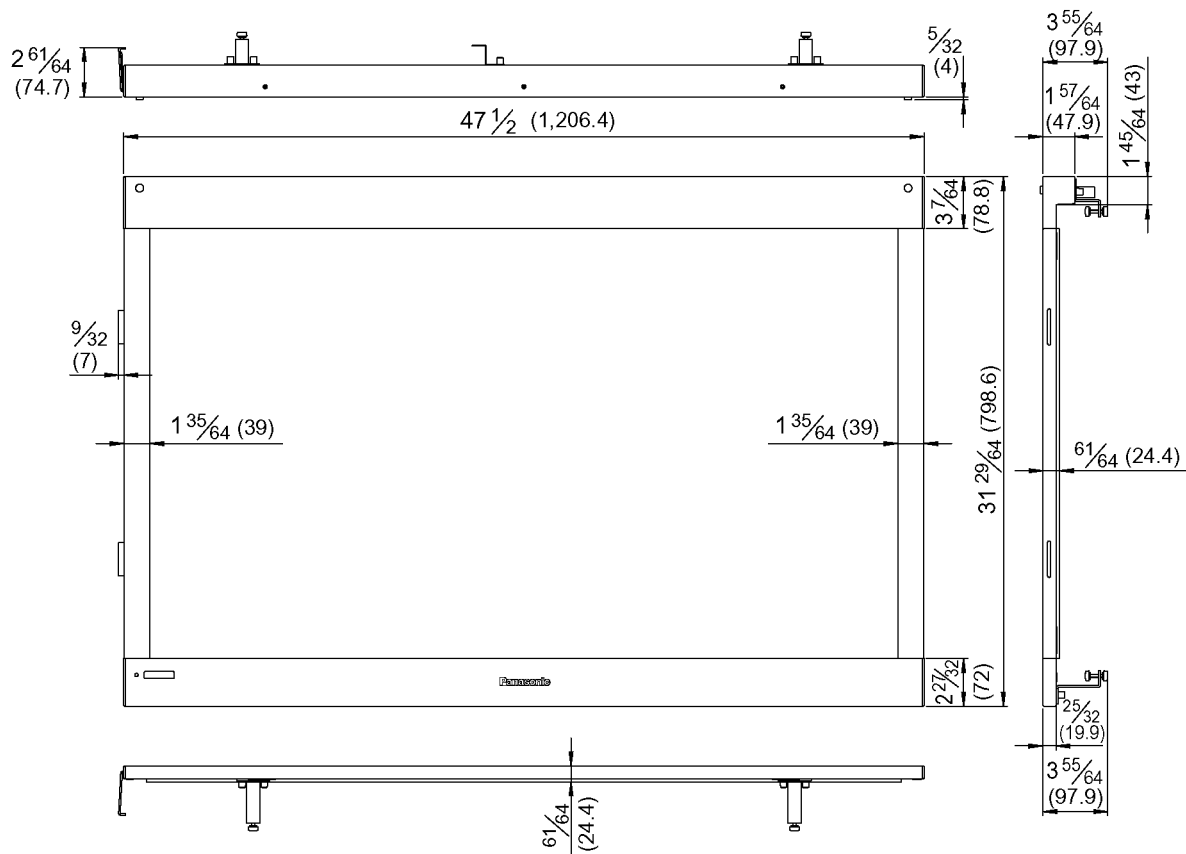   Refer to "Touch Panel Setup (Advanced setting)" of "Setup Procedure".

8 Dimensions

TY-TP42P10S

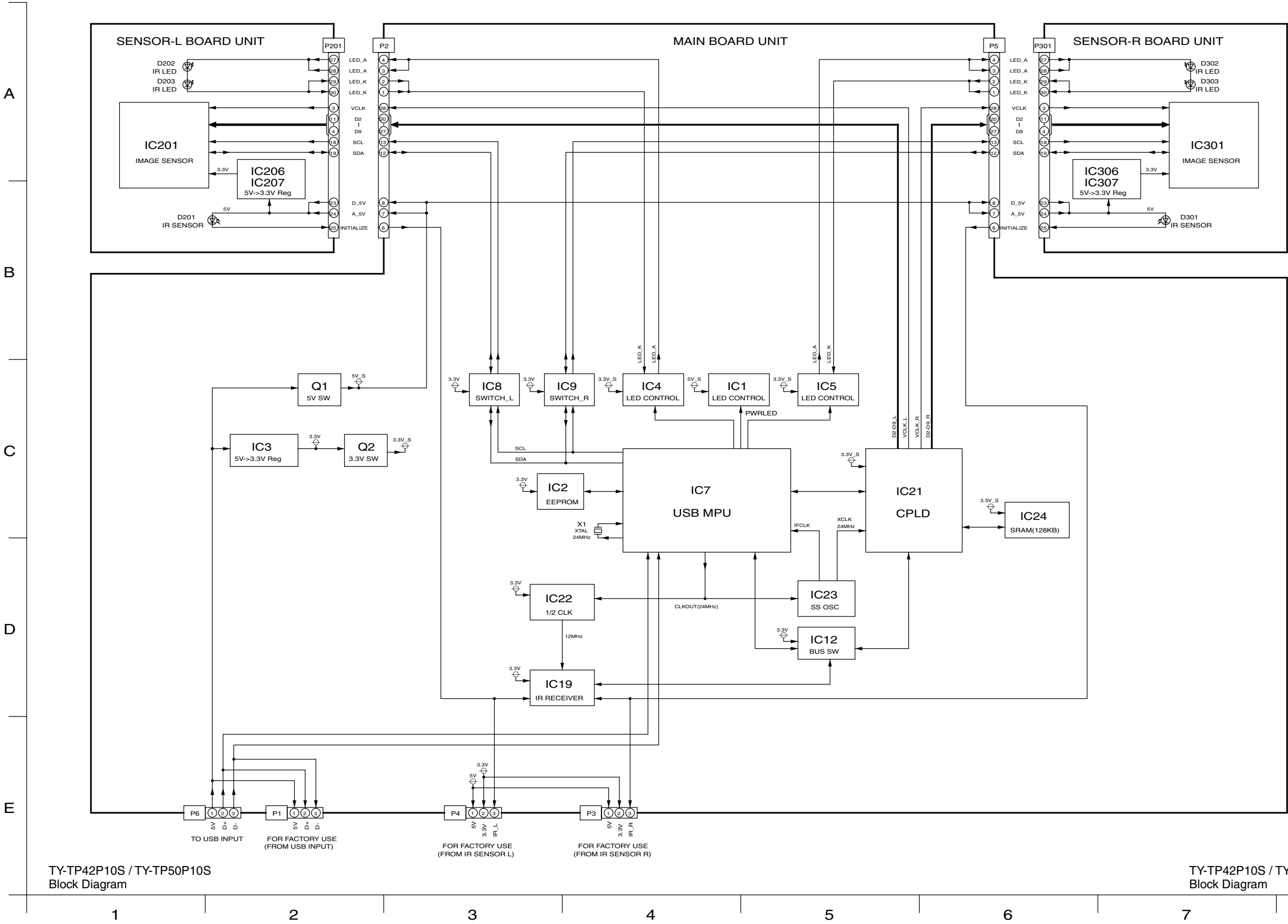## TY-TP50P10S

9 Block Diagram

SENSOR-L BOARD UNIT

MAIN BOARD UNIT

SENSOR-R BOARD UNIT

D202 IR LED
D203 IR LED

LED_A
LED_A
LED_K
LED_K

VCLK
D2
D9
SCL
SDA

IC201
IMAGE SENSOR

IC206
IC207
5V->3.3V Reg

D201
IR SENSOR

D_5V
A_5V
INITIALIZE

D302 IR LED
D303 IR LED

IC301
IMAGE SENSOR

IC306
IC307
5V->3.3V Reg

D301
IR SENSOR

Q1
5V SW

IC3
5V->3.3V Reg

Q2
3.3V SW

IC8
SWITCH_L

IC9
SWITCH_R

IC4
LED CONTROL

IC1
LED CONTROL

IC5
LED CONTROL

IC2
EEPROM

IC7
USB MPU

IC21
CPLD

IC24
SRAM(128KB)

X1
XTAL
24MHz

IC22
1/2 CLK

IC23
SS OSC

IC12
BUS SW

IC19
IR RECEIVER

P6
TO USB INPUT

P1
FOR FACTORY USE
(FROM USB INPUT)

P4
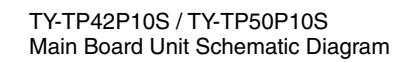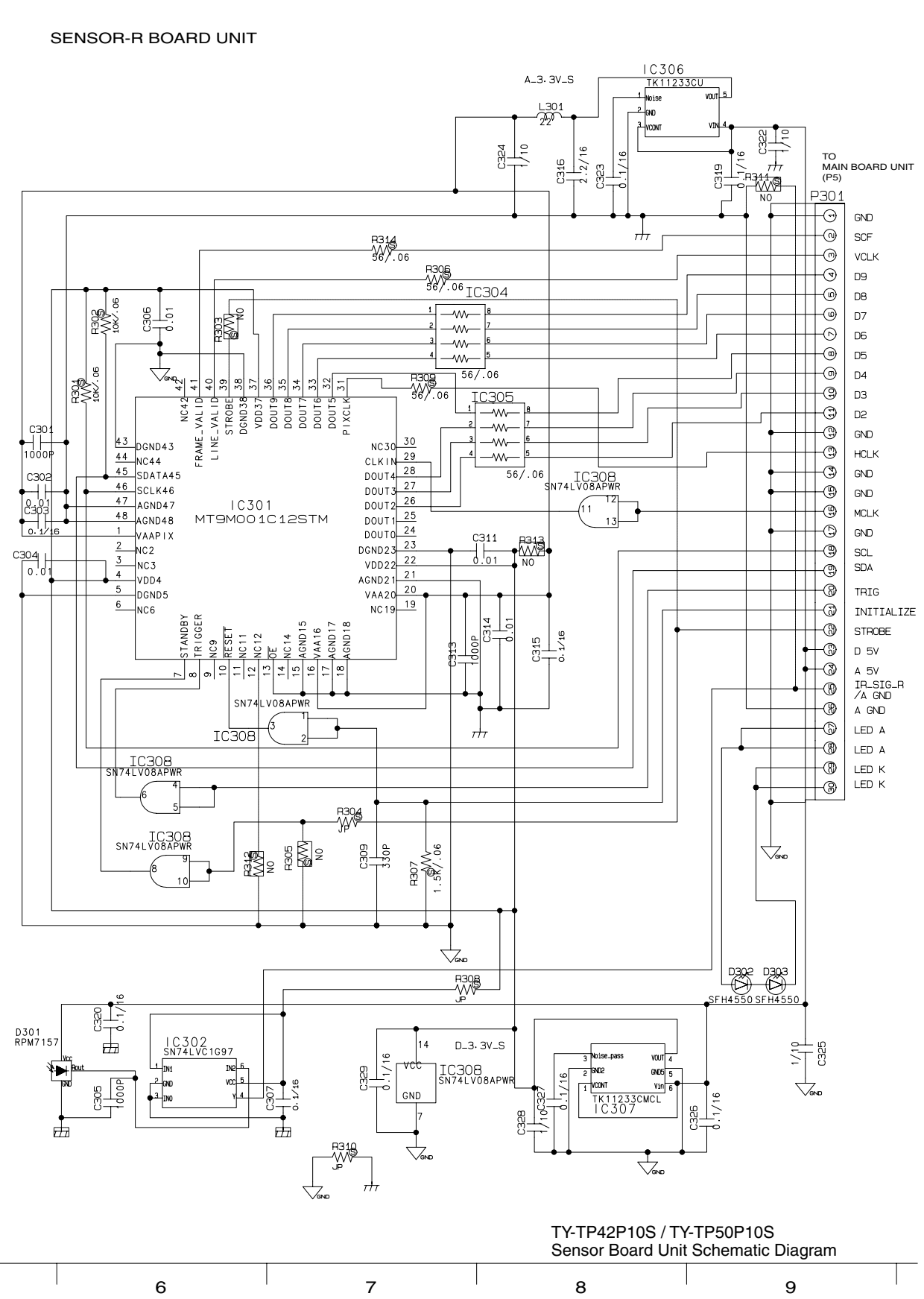FOR FACTORY USE
(FROM IR SENSOR L)

P3
FOR FACTORY USE
(FROM IR SENSOR R)

TY-TP42P10S / TY-TP50P10S
Block Diagram

TY-TP42P10S / TY-TP50P10S
Block Diagram

10 Schematic Diagram

10.1. Main Board Unit Schematic Diagram

TY-TP42P10S / TY-TP50P10S Main Board Unit Schematic Diagram

MAIN BOARD UNIT

TY-TP42P10S / TY-TP50P10S
Main Board Unit Schematic Diagram

SENSOR-L BOARD UNIT

SENSOR-R BOARD UNIT

TY-TP42P10S / TY-TP50P10S
Sensor Board Unit Schematic Diagram

TY-TP42P10S / TY-TP50P10S
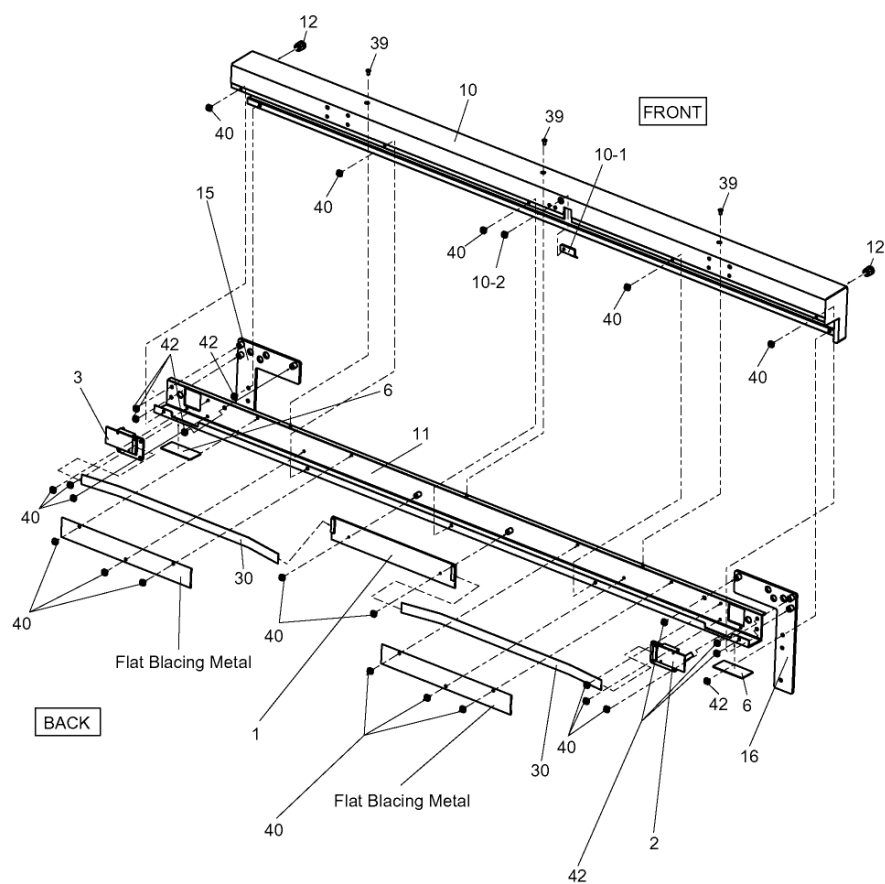Sensor Board Unit Schematic Diagram
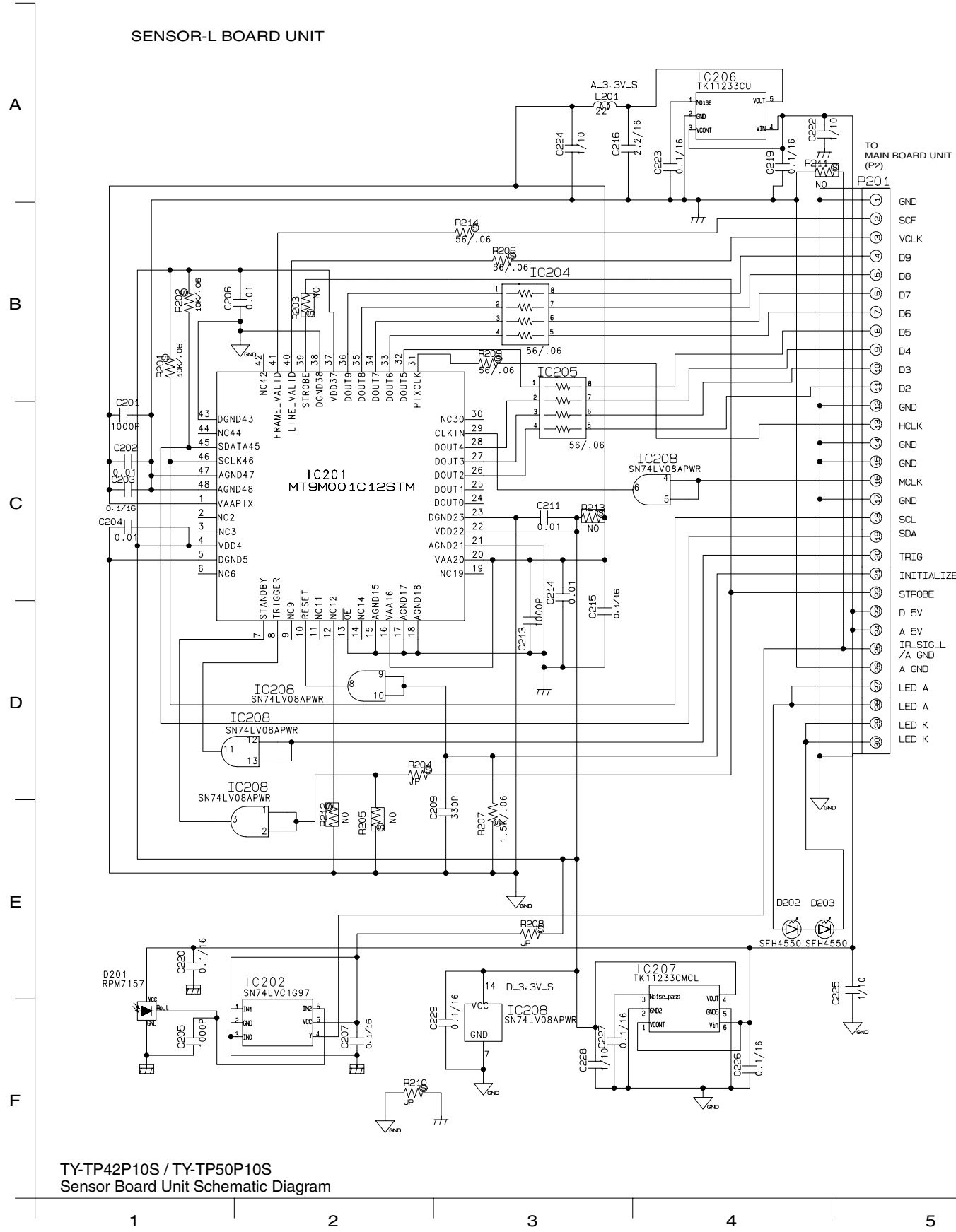
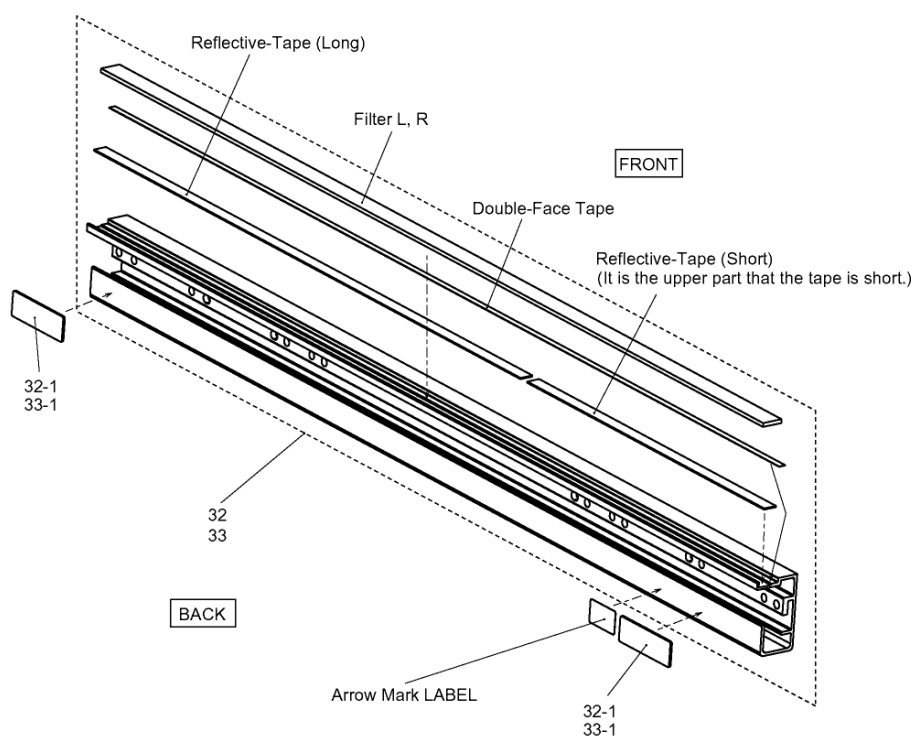## Model No. : TY-TP42P10S　Important Safety Notice

Note:　Important Safety Notice

　　　Components identified by ⚠ mark have special characteristics **important for safety.**

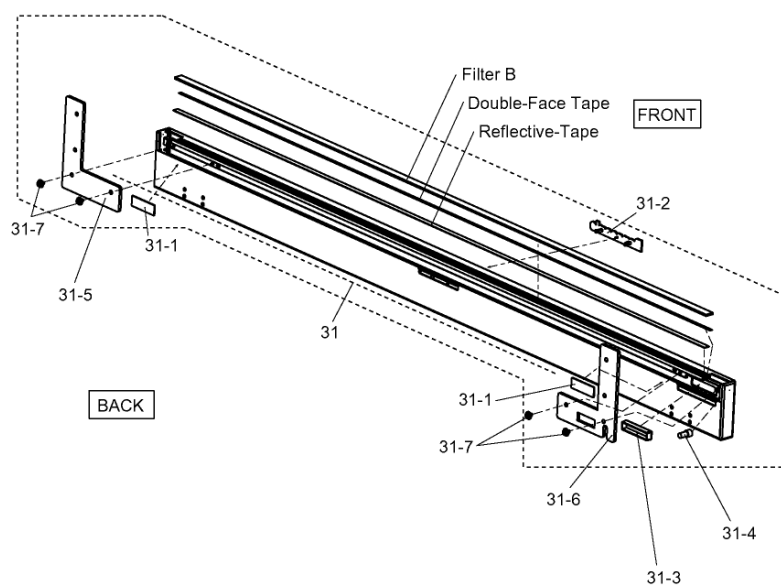　　　When replacing any of these components, use only manufacturer's **specified parts.**

12
39
10
FRONT
39
40
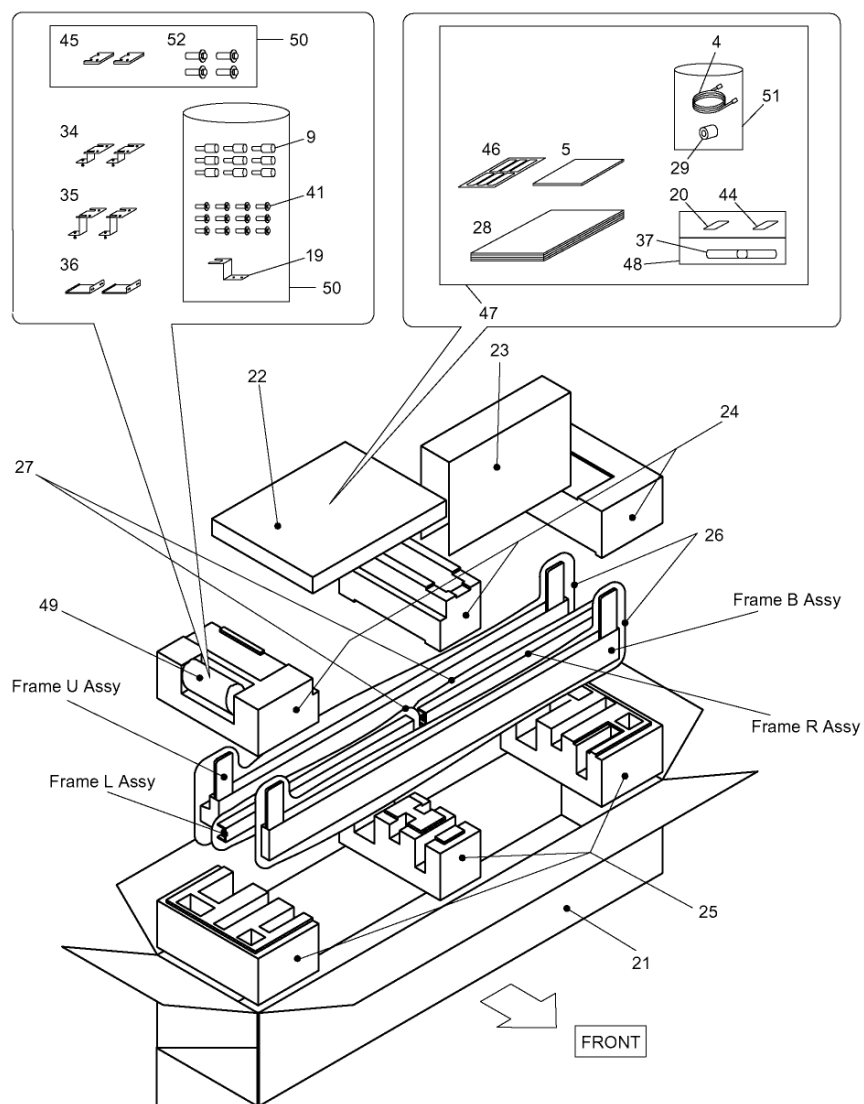10-1
40
15
40
39
10-2
12
42 42
40
3
40
6
40
11
40
30
40
40
Flat Blacing Metal
BACK
1
30
42 6
40
16
Flat Blacing Metal
40
2
42

Reflective-Tape (Long)

Filter L, R

FRONT

Double-Face Tape

Reflective-Tape (Short)
(It is the upper part that the tape is short.)

32-1
33-1

32
33

BACK

Arrow Mark LABEL

32-1
33-1

Filter B

Double-Face Tape

Reflective-Tape

FRONT

31-2

31-7

31-1

31-5

31

BACK

31-1

31-7

31-6

31-4

31-3

FRONT

Model No. : TY-TP42P10S　　Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
TY-TP42P10S					
⚠	1	TXN/12WETB	CIRCUIT BOARD MAIN	1	
⚠	2	TXN/22WETB	CIRCUIT BOARD SENSOR-L	1	
⚠	3	TXN/31WETB	CIRCUIT BOARD SENSOR-R	1	
	4	T9ZC054	USB CABLE	1	
	5	T9ZC055	CD ROM	1	
	6	TBLG3111	RUBBER PAD-M	2	
	9	THEC1159	HIGH PICK	9	
	10	TTEA0473T	COVER-U ASSY	1	
	10-1	TUCX5241	BOARD SPRING	1	
	10-2	XYN3+F6FN	SCREW M3*6W	1	
	11	TTEA0474	FRAME-U ASSY	1	
	12	TKKL5423	IR COVER	2	
	15	TTRA0186	RIGHT ANGLE-UR ASSY	1	
	16	TTRA0187	RIGHT ANGLE-UL ASSY	1	
	19	TKZX5214	USB HOOK	1	
	20	TMMX217	VELCRO STRAP (HOOK)	1	
⚠	21	TPCC35601	CARTON BOX	1	
	22	TPCC35701	PARTS BOX	1	
	23	TPCC35801	SPACER	1	
	24	TPDA1716	CUSHION TOP	1	
	25	TPDA1717	CUSHION BOTTOM	1	
	26	TQEF076	POLY BAG-L	2	
	27	TQEF077	POLY BAG-S	2	
⚠	28	TQZH939-1T	INSTRUCTION BOOK(ENGLISH)	1	
⚠	28	TQZH940-1T	INSTRUCTION BOOK(GERMAN)	1	
⚠	28	TQZH941-1T	INSTRUCTION BOOK(FRENCH)	1	
⚠	28	TQZH942-1T	INSTRUCTION BOOK(ITALIAN)	1	
⚠	28	TQZH943-1T	INSTRUCTION BOOK(SPANISH)	1	
⚠	28	TQZH944-1T	INSTRUCTION BOOK(RUSSIAN)	1	
⚠	28	TQZH945-1T	INSTRUCTION BOOK(UKRAINA)	1	
	29	TSAA0006	FERRITE CORE	1	
	30	TSXL649	CABLE	2	
	31	TTEA0429	FRAME B ASSY	1	
	31-1	TBLG3112	RUBBER PAD-S1	2	
	31-2	TBMA068	PANASONIC BADGE	1	
	31-3	TKKL5424	REMOTE COVER	1	
	31-4	TKKL5425-2	LED LENS	1	
	31-5	TKZA5092	RIGHT ANGLE-BR	1	
	31-6	TKZA5093	RIGHT ANGLE-BL	1	
	31-7	XYN4+F10FN	SCREW M4*10W	4	
	32	TTEA0430	FRAME R ASSY	1	
	32-1	TBLG3112	RUBBER PAD-S1	2	

Model No. : TY-TP42P10S   Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	33	TTEA0431	FRAME L ASSY	1	
	33-1	TBLG3112	RUBBER PAD-S1	2	
	34	TTRA0153-1	MOUNTING TAB U UNIT	2	
	35	TTRA0166	MOUNTING TAB B UNIT	2	
	36	TTRA0155	VERTICAL HOOK ASSY	2	
	37	TTRA0160	TOUCH PEN ASSY	1	
	39	XSS3+6FN	M3 SCREW	3	
	40	XYN3+F6FN	SCREW M3*6W	19	
	41	XYN4+F10FN	SCREW M4*10W	12	
	42	XYN4+F10FN	SCREW M4*10W	8	
	44	TMMX216	VELCRO STRAP (LOOP)	1	
	45	TBLA3662	ATTACHED PLATE	2	
	46	TBLG3114	RUBBER PAD-S2	6	
	47	TQEF080	POLY BAG 300x460	1	
	48	TQEF081	POLY BAG 501	1	
	49	TQEF082	AIR CAP	1	
	50	TQEF083	POLY BAG 100x150	2	
	51	TQEF084	POLY BAG 180x270	1	
	52	XYN5+F25FJK	SCREW	4	

FRONT

BACK

Flat Blacing Metal

Flat Blacing Metal

Reflective-Tape (Long)

Filter L, R

FRONT

Double-Face Tape

Reflective-Tape (Short)
(It is the upper part that the tape is short.)

32-1
33-1

32
33

BACK

Arrow Mark LABEL

32-1
33-1

Filter B

Double-Face Tape

Reflective-Tape

FRONT

31-2

31-7

31-1

31-5

31

BACK

31-1

31-7

31-6

31-4

31-3

Model No. : TY-TP50P10S   Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
			TY-TP50P10S		
⚠	1	TXN/11WETE	CIRCUIT BOARD MAIN	1	
⚠	2	TXN/22WETB	CIRCUIT BOARD SENSOR-L	1	
⚠	3	TXN/31WETB	CIRCUIT BOARD SENSOR-R	1	
	4	T9ZC054	USB CABLE	1	
	5	T9ZC055	CD ROM	1	
	6	TBLG3111	RUBBER PAD-M	3	
	9	THEC1159	HIGH PICK	9	
	10	TTEA0463T	COVER-U ASSY	1	
	10-1	TUCX5241	BOARD SPRING	1	
	10-2	XYN3+F6FN	SCREW M3*6W	1	
	11	TTEA0476	FRAME-U ASSY	1	
	12	TKKL5423	IR COVER	2	
	15	TTRA0186	RIGHT ANGLE-UR ASSY	1	
	16	TTRA0187	RIGHT ANGLE-UL ASSY	1	
	19	TKZX5214	USB HOOK	1	
	20	TMMX217	VELCRO STRAP (HOOK)	1	
⚠	21	TPCC35901	CARTON BOX	1	
	22	TPCC36001	PARTS BOX	1	
	23	TPCC36101	SPACER	1	
	24	TPDA1716	CUSHION TOP	1	
	25	TPDA1717	CUSHION BOTTOM	1	
	26	TQEF076	POLY BAG-L	2	
	27	TQEF077	POLY BAG-S	2	
⚠	28	TQZH939-1T	INSTRUCTION BOOK(ENGLISH)	1	
⚠	28	TQZH940-1T	INSTRUCTION BOOK(GERMAN)	1	
⚠	28	TQZH941-1T	INSTRUCTION BOOK(FRENCH)	1	
⚠	28	TQZH942-1T	INSTRUCTION BOOK(ITALIAN)	1	
⚠	28	TQZH943-1T	INSTRUCTION BOOK(SPANISH)	1	
⚠	28	TQZH944-1T	INSTRUCTION BOOK(RUSSIAN)	1	
⚠	28	TQZH945-1T	INSTRUCTION BOOK(UKRAINA)	1	
	29	TSAA0006	FERRITE CORE	1	
	30	TSXL649	CABLE	2	
	31	TTEA0434	FRAME B ASSY	1	
	31-1	TBLG3112	RUBBER PAD-S1	2	
	31-2	TBMA068	PANASONIC BADGE	1	
	31-3	TKKL5424	REMOTE COVER	1	
	31-4	TKKL5425-2	LED LENS	1	
	31-5	TKZA5092	RIGHT ANGLE-BR	1	
	31-6	TKZA5093	RIGHT ANGLE-BL	1	
	31-7	XYN4+F10FN	SCREW M4*10W	4	
	32	TTEA0435	FRAME R ASSY	1	
	32-1	TBLG3112	RUBBER PAD-S1	2	

Model No. : TY-TP50P10S   Parts List

Safety	Ref. No.	Part No.	Part Name & Description	Q'ty	Remarks
	33	TTEA0436	FRAME L ASSY	1	
	33-1	TBLG3112	RUBBER PAD-S1	2	
	34	TTRA0153-1	MOUNTING TAB U UNIT	2	
	35	TTRA0154-1	MOUNTING TAB B UNIT	2	
	36	TTRA0155	VERTICAL HOOK ASSY	2	
	37	TTRA0160	TOUCH PEN ASSY	1	
	39	XSS3+6FN	M3 SCREW	3	
	40	XYN3+F6FN	SCREW M3*6W	19	
	41	XYN4+F10FN	SCREW M4*10W	12	
	42	XYN4+F10FN	SCREW M4*10W	8	
	44	TMMX216	VELCRO STRAP (LOOP)	1	
	45	TBLA3662	ATTACHED PLATE	2	
	46	TBLG3114	RUBBER PAD-S2	6	
	47	TQEF080	POLY BAG 300x460	1	
	48	TQEF081	POLY BAG 501	1	
	49	TQEF082	AIR CAP	1	
	50	TQEF083	POLY BAG 100x150	2	
	51	TQEF084	POLY BAG 180x270	1	
	52	XYN5+F25FJK	SCREW	4	